

CHOICE

www.choice.com.au

**How to save \$400 a year
on your water bill**

**Have you got the best
credit card loyalty scheme?**

**Are there better ways to
heat your home
this winter?**



**Has this ever
happened to you?
Find out which brands are
more reliable
— appliances from A-Z**

TESTS:

- Portable TVs
- Electric convection heaters

Frequently asked question no. 1: who owns CHOICE?



Jane Mackenzie

CHOICE regularly advises you to read the small print in contracts, but doing the same in the magazine itself is probably something not many subscribers think they need to bother about. After all, CHOICE is on your side. So maybe it's worth bringing the small print to the forefront for once to remind you what makes us tick.

On page 50 of each issue we tell you all about ourselves: that the Australian Consumers' Association publishes CHOICE

and that it's a non-profit, non-party-political organisation.

What this means in practice is that we're supported only by the people who buy our products: the various magazines, CHOICE Books and some technical services. We get no regular funds from any industry, government or political party, or any other source except you.

We buy all the products we test just like you would: we go to the shops and pay like ordinary consumers. That way we're not beholden to manufacturers for any gifts and we find out what it's like to be on the receiving end of sales patter.

While it's obvious that CHOICE takes no advertising, you may not know that we also have a very strict policy about not allowing commercial organisations to use the results of our tests in *their* advertising — we don't want anyone to think we're endorsing a particular brand or product. So if you ever see an ad along the lines of "recent CHOICE tests show brand X is the best", let us know. We'll do everything we can to stop the company doing this.

Finally, thank you again for your support. Without you, there'd be no CHOICE, and no Consumers' Association doing its best to represent consumers in the public arena and provide a balance to the influence of powerful commercial organisations.

Jane Mackenzie, Editor

Your letters

We welcome the letters you send us — please always include a daytime telephone number so we can contact you quickly if we want to follow up your letter. We're sorry we can't personally answer every letter we receive, but we do use them in our research. Thanks for taking the time to keep in touch.

Write to us at CHOICE, 57 Carrington Road, Marrickville 2204.

Phone us on (02) 9577 3399.

Fax us on (02) 9577 3355.

email us at ausconsumer@choice.com.au

World Wide Web address: www.choice.com.au

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Nothing lasts forever. When you're shelling out hundreds of dollars, it's worth considering a brand's reliability as well as its performance. Find out what you told us in our reliability survey ...

Cover photo: Kent Mears



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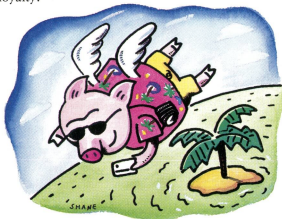
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Last year, nearly 60% of you told us you'd changed your spending habits because of credit card reward schemes. So are you getting the best deal for your loyalty?



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A typical family of four could save \$400 a year on its water bills simply by changing its behaviour a little and shopping carefully when replacing appliances.

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Choosing the right fuel as well as the type and size of heater can help you to save on your energy bill, and reduce your contribution to the greenhouse effect. You'll find tips and a calculator to work out your current costs and possible savings.

▶
Choosing the right heater can keep you warm and help the environment. See page 30 for your options and page 27 for our test of fan-assisted electric convection heaters.



38 Finding a good tradesperson

Need a tradesperson? An honest, reliable and competent one? Unfortunately, we can't put them all to the test, but following our checklists may help you avoid some of the problems and pitfalls for your next household job.

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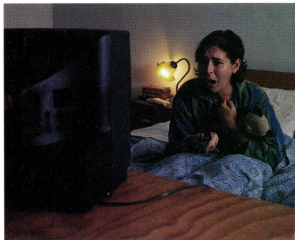
There's a new drill with a contact function designed to switch off the drill as soon as it hits a pipe or electric wiring, and a new multitasking sander with a range of profiles for working on things like picture rails or skirting boards. How do they rate?

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Will an electric convection heater be enough to keep you warm this winter? Check out our test.

44 Portable TVs

If you like scaring yourself silly with midnight horror movies, you probably want a small portable TV for your bedroom. Which models are best?



Gas water heater warning

IS THERE AN ELDERLY GAS WATER heater in your home? If so, it's worth checking that it's not putting your family at risk of carbon monoxide poisoning.

Two kinds of heater — flued heaters in bathrooms and flueless ones in kitchens (see photos) — are risky and their installation is no longer allowed in kitchens and bathrooms in Australia for safety reasons. But heaters put in before the installation ban remain, particularly in NSW, where they were allowed to replace even older, more dangerous bath heaters until 1987.

If the heaters aren't properly ventilated, are poorly maintained or installed, or a flue is blocked, they may not burn properly. They will then produce

carbon monoxide, a poisonous gas without any smell or taste, instead of carbon dioxide.

Carbon monoxide inhalation can be fatal; symptoms include drowsiness, headaches, dizziness, nausea and pains in the chest or stomach.

The heaters are still being manufactured and sold, as their use in other areas, such as outside laundries, is not a problem because the gas can escape.

Signs that heaters may be producing carbon monoxide include:

- Blocked ventilation (such as air bricks).
- Blocked or damaged flue pipe.
- Soot deposits — look for discolouration on or around the heater.

Surprisingly, bathroom exhaust fans

can make the problem worse by causing flue gases to enter the room. They shouldn't be used until the heater has been removed.

A coronial inquiry into the death of a woman poisoned by fumes from a gas water heater has sparked a safety campaign in NSW. Gas provider AGL and the NSW Department of Fair Trading are encouraging consumers to scrap these heaters. If that's not possible immediately, they recommend regular servicing until they can be removed.

AGL has distributed a safety leaflet warning of the dangers and will carry out free inspections of these heaters for its customers. To make a booking or for further information, AGL customers can call its safety hotline on 13 16 06.



If you have one of these water heaters in your kitchen (far right) or bathroom, have it checked for carbon monoxide production.

Can you help?

Battling with cockroaches?

If you've been trying to rid your home of cockroaches, we'd like to hear about your strategy and experiences:

- What type of cockroach were you fighting (big ones or little ones)?
- How heavily infested was your home?
- Did you use your own recipe (please tell us what it was), a commercial product (please tell us which one), or did you call in a pest control company to fight the infestation?
- How successful was the treatment?
- Did you experience any health or other problems with the treatment?

Please write to us at **Cockroach**, CHOICE, 57 Carrington Road, Marrickville 2204; fax us on (02) 9577 3377; or email us at: cockroach@choice.com.au by the end of April.

Computer support

CHOICE's sister magazine *Computer CHOICE* is looking for people who have used computer phone support or a consultant for their home computer in the past month or two.

Please write to us at **Consult**, CHOICE, 57 Carrington Road, Marrickville 2204; fax us on (02) 9577 3377; or email us at: consult@choice.com.au by the end of April.

Thank you for your help.

BABY CARRIER WARNING

If you bought the **BABY BJÖRN BABY CARRIER** that was recommended in a test report in the June 1998 issue of CHOICE, please note that, according to the manufacturer, it needs modifying before use with smaller babies (up to 4.5 kg)

because the leg opening is large enough for them to slip through.

You can contact your retailer or Hannan International

(on (03) 9645 0222) for a

modifying girdle. See also *Recalls and bans*, page 48.



Do-it-Yourself Jobs: preventing injury



Information for the Home Handyperson

Based on research undertaken by
Monash University Accident Research Centre & Centre
for Injury Prevention, this is a comprehensive guide to the
prevention of injury in the home.

Monash University Accident Research Centre,
Wellington Road, Clayton 3168; or by phoning
Karen Ashby on (03) 9905 1805. The brochure can
also be found on MUARC's website:
www.general.monash.edu.au/muarc.

Ouch!

MONASH UNIVERSITY'S
Accident Research Centre
(MUARC) has put
together this useful
brochure to raise
awareness about the
nature of do-it-yourself
injuries and tips on how
to prevent them.

MUARC tells us the
brochure has proved
very popular and is
going fast. However, a
limited number is still
available, and you can
get one by writing to

Updates

Car polishes

CHOICE, Jan/Feb 1999

Since publishing this article we've been
informed that the **TURTLE WAX** products
reported on were old stock that is no longer
on the market. A new range of **TURTLE WAX**
products is now available. These products
also have a new distributor, Kelray Australia.

Sausages

CHOICE, Jan/Feb 1999

CHOICE's test report revealed that about half
the sausages sold by butchers as 100% beef
in fact contained other meats too. In
addition, the test found five lots of sausages
containing more of the preservative sulphur
dioxide than is permitted by the Food
Standards Code.

The National Meat Association, which
represents around 2500 independent
butchers, has sent a letter to its members,
reminding them that all sausages must
conform to the Food Standards Code, and
that if a sausage is labelled beef, lamb or
pork, the meat in it must be 100% that meat.

We're always pleased when a CHOICE
report prompts an industry to try to clean up
its act.

Price rise for CHOICE

From May 1 this year the cost of a year's subscription to CHOICE will rise by \$2 to \$54. We're forced to do this because of higher production and other costs, but have kept the increase as low as we can.

The increases for other subscription categories will be as follows:

- Two years' individual subscription: \$100.
- Institutions and companies, one year: \$72.
- Institutions and companies, two years: \$136.
- Voting members: \$81.

This information will be shown on the order form (page 49) from the May issue of CHOICE.



**Over 100,000 Australians lost their money
in fraudulent and illegal investments in
the last 10 years.**

Here we review the latest investment
news from the **Australian Securities and
Investments Commission (ASIC)** and give
you tips on how to avoid investment
pitfalls. For further information call the
ASIC infoline on 1300 300 630.

\$18,000 lost in offshore 'investment'

Representatives from the Netherlands have
been telephoning Adelaide residents offering
shares in **PGS PHARMACEUTICALS GROUP INC**
— a Florida-based company involved in the
testing and distribution of a new dental
treatment (chlorzoin therapy).

One Adelaide resident made two
investments to a total of \$18,000 in the
company and was sent share certificates. He
then received another call advising him that
PGS was buying back the shares and that he
should send back the share certificates, which
he did.

He has heard nothing since, received no
money for the shares and has been unable to
contact **PGS**.

This is just one example. Promoters have
been calling people around Australia to offer
investments in foreign companies — usually
information technology, media or
pharmaceutical companies.

The salesperson often claims to have some

inside knowledge that the share prices are
guaranteed to go up.

The promoters send out glossy brochures
and the investment may sound quite
legitimate, but in some cases the companies
turn out to be non-existent.

Some of the callers give names such as
**STRATEGIC ALLIANCE GROUP (SAG), PRYCE
WESTERN, KNOWLE SACHS or FIRST FEDERAL**
— but there are many others.

The promoters have been calling from the
Philippines, Thailand, Hong Kong, US, UK, the
Netherlands and the British Virgin Islands, but
could come from other overseas countries.

How to invest overseas

If you want to invest overseas you can buy
shares in legitimate foreign companies through
licensed Australian advisers and brokers. You
are then protected by Australian law.

However, if you send money to overseas
promoters you have no such protection and
no guarantee that you'll receive shares in a
real company.

It's very hard to get your money back if the
promoters are outside Australia because your
rights are subject to the laws of another country.

CHOICE advice

If you get a call from someone offering you an
investment, take these steps:

- Ask for the name of the person you're
speaking to, where they're calling from and
what firm they represent.
- Ask if they're licensed by ASIC to deal in
securities in Australia. If they say they are,
check that on the ASIC website
(www.asic.gov.au) or by calling the ASIC
infoline before making any decisions.
- If they're not licensed, don't call them back
and give them short shrift if they ring again.
Instead call the ASIC infoline so that ASIC can add
this call to its database to warn other investors.

When is a PIN not a PIN?

MICHELLE FORRESTER HAD HER wallet with two credit union ATM cards stolen while she was shopping with her children. "In the half-hour it took me to notice the theft and cancel the cards, the thieves had gone to the ATM several times and taken \$400 from one and \$1000 from the other card," says Michelle.

She had disguised the cards' PINs as



Michelle got her stolen money back, but guidelines for when a PIN is or isn't suitably disguised aren't straightforward.

phone numbers on the back of a business card she kept in her wallet along with several others. Both credit unions therefore refused her claim initially, saying she hadn't taken reasonable care to disguise her PIN.

One credit union paid after she complained in writing, the second as a "gesture of good faith" after she took her claim to the Credit Union Dispute Reference Centre.

According to the EFT Code of Conduct, you won't be reimbursed if you keep a record of your PIN with your card without having made a "reasonable attempt to disguise the PIN". The Banking Ombudsman, Colin Neave, says thieves are well aware that people disguise their PIN as a birthdate, a driver's licence number, a postcode or a telephone number.

An exception might be made if the PIN was appropriately disguised within the number or kept somewhere where it wouldn't be expected.

But what is a reasonable disguise? As a result of a recent review of the EFT Code by the Australian Competition and Consumer Commission (ACCC), the Banking Ombudsman has proposed new guidelines to help consumers and

industry interpret the EFT Code.

According to these proposed guidelines, 'reasonable' disguises are:

- Altering the content of the PIN (for example, rearranging the numerals or substituting them with other numerals or symbols).
- If you need a record somewhere at home, placing it where it wouldn't be expected (such as on a piece of paper in a cookbook).
- Making the PIN appear as another type of number by surrounding it with other numerals or symbols.
- A combination of the above methods.

The most significant change to the EFT Code is that a stolen card accessed with the correct PIN is no longer by itself conclusive evidence that you've contributed to the loss. All reasonable evidence has to be taken into consideration — for example, whether someone could have observed you while you used your PIN.

For more information you can contact the Australian Banking Industry Ombudsman, GPO Box 3A, Melbourne 3001; phone (03) 9613 7373 or 1800 334 777; fax (03) 9613 7345; website: www.werple.net.au/~abio.



CHOICE is one of many consumer magazines from organisations worldwide that make up Consumers International. Get the lowdown on what's happening with your fellow consumers around the world in World Consumer Snapshot.

■ Deer me

Sick of having your garden nibbled by herds of hungry deer? The US *Consumer Reports* tested a range of homemade and commercial deer

repellents for effectiveness and ease of use. We haven't checked to see whether the commercial products are available here, but the good news is that the homemade potions — sachets of highly perfumed soap, and a spray made from eggs, chilli and garlic — did just as well as the commercial mixtures. But use them judiciously around Christmas time — you wouldn't want to repel Rudolph and his mates.

■ Raw snake bile warning

The Hong Kong Consumer Council has cautioned the readers of its *Choice* magazine against taking raw snake bile. Reputed to "clear 'heat', eliminate phlegm and tranquilise the mind", raw snake bile has been implicated in hepatitis infection and can pass snake parasites to humans.

The problem lies in the fact that although a typical snake biliary bladder is plunked into wine soon after being removed, the alcohol isn't strong enough to sterilise the bladder and its contents.

You would be wise, therefore, to resist the temptation to eat raw snake bile.

■ That stinks!

Have you ever wondered why perfume is so expensive? Well, it ain't because of the ingredients. France's *Que Choisir* worked out where your money goes when you buy a bottle of perfume. The perfume itself was valued at about 2% of the retail price; 30% goes on marketing, 10% on the packaging, 20% on tax and the rest is pure profit.

● YOUR letters

We're always pleased to publish subscriber letters with useful hints for other consumers.

Check your docket

Every couple of weeks I do my supermarket shopping — always at the same large supermarket in Sydney.

After I'd finished one such shopping trip in October last year, I noticed on my docket that I'd been charged \$4.68 for a 500 g jar of yoghurt, labelled *Yoghurt skim* on the docket. The jar I'd bought wasn't skim yoghurt, and while I'm not sure about its exact price, I was certain it wasn't as high as \$4.68.

My next visit to the supermarket was in mid November. I bought the same yoghurt again — it was priced at \$2.48 on the shelf. However, when I checked my docket this time I was again charged \$4.68 for *Yoghurt skim*. (This brand does have a skim-milk variety in a 1 kg jar.)

I presented both dockets to customer service and received a full refund for both purchases. However, I found it quite remarkable that the price for this item had been recorded incorrectly in the

computer system for such a long time — 3½ weeks! I can only assume that for all this time, every customer who bought this yoghurt variety must have been overcharged.

Do we need to be reminded to be aware of our purchases and their prices, and to check our dockets?

Julie Moffat
Erskineville, NSW

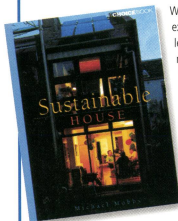
The supermarket in question told us that ticket prices couldn't possibly be checked continuously for all the 10,000-plus products on sale. However, if an item is identified as being priced incorrectly, customers will receive it free or be reimbursed. So it's definitely good advice to note the prices for the goods you're buying, keep an eye on the scanned price at the checkout and check the docket. In terms of overall accuracy, however, Australia isn't doing too badly, according to the Australian Supermarket Institute. Its 1995 and 1997 surveys found an error rate of 0.6%

LETTER OF THE MONTH

We want to hear from you — your experiences help our research and often let other readers know about scams and rip-offs. To thank you for writing to us, *Your Letters* awards a prize of a CHOICE book to the 'Letter of the Month'. This month's winner, Julie Moffat of Erskineville, NSW, receives *Sustainable House*, or any other book of her choice from the CHOICE Books catalogue you received with this issue.

We're sorry we don't have the resources to answer all your letters

personally, and in the magazine we may edit them or print only an extract. See page 2 for how to reach us.



(compared with a 3% error rate in US surveys) and of these, two thirds were in favour of the customer.

Water-efficient showering

I read with interest your excellent article on water-efficient shower heads in the December 1998 issue.

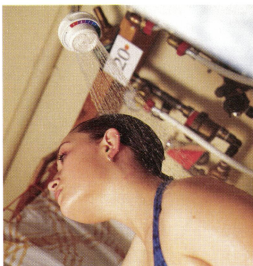
In 1997, when I considered buying two such units for our house, our local plumbing supplier advised me instead to purchase a nylon flow-restricting disc (a small plastic insert, vaguely the size of a button, with holes in it) from its store for about \$3.

I did so, removed our existing shower heads, inserted the disc into the rear of the shower head and then replaced it. This instantly reduced our water usage to about two thirds — I tested this before and after with a bucket and a timer. The shower head itself still worked remarkably well, although with a little less pressure.

I thought your readers might be interested in this line of approach to the problem, as it was *extremely* cost-effective.

M J Costello
North Rockhampton, Qld

Using a flow restrictor in a standard shower head is indeed cost-effective, and it'll probably reduce your water flow from, say, 20 L to 12 L per minute. Some types of flow restrictor can even reduce the flow to 9 L per minute. However, with such a low volume you're likely to get a less effective shower, which



may turn you off water-efficient showering altogether. So if you don't mind a weaker shower, give the cheap solution a try, but keep in mind that you might get more satisfactory showers with a purpose-built water-efficient shower head.

Toothbrushes discounted

After reading your test report on toothbrushes in the November 1998 issue of CHOICE, I thought you may wish to know and pass on to your readers that toothbrushes are often available at reduced prices through local dentists and orthodontists.

Our dentist and my son's orthodontist both supply one of the toothbrushes included in your *What to buy* list for \$2 each, or \$20 for a box of 12. This is around half the price of buying them in the supermarket. Both adult and children's sizes are available at this price. I now always buy a box, which is good value for money, and toothbrushes can be replaced regularly, as recommended.

Karen Vanderhaar
Regents Park, Qld

Some dental professionals even give them away free, or include one in the cost of the treatment. Check with yours. □

Last year nearly 60% of our readers told us they'd changed their spending habits because of credit card reward schemes. So are you getting the best deal for your loyalty?



Fly by when?

IN BRIEF

■ Rewards programs can be a good perk if you don't tie yourself to new spending habits — or increase your debt just to earn points.
■ See pages 10–12 for the best programs for flights, shopping, travel, leisure/entertainment and car rewards.

A 'REWARDS PROGRAM' CAN BE anything from a free cup of coffee for every five you buy at your favourite cafe to a trip to London. Regardless of the scale, the principle remains the same — companies want you to choose their product, so they entice you with the promise of something for nothing. With a bit of savvy you can make a rewards program pay, but keep in mind the trade-offs you could be making.

We looked at 20 reward programs attached to credit cards, charge cards, airlines and other programs to work out how you can be rewarded faster.

Working the program so it doesn't work you

The best way to make one of these programs work is to ensure it suits you, and that you're not changing your habits to suit it.

For example, using the FLY BUYS program restricts you to earning points only at certain retailers, unless it's linked to a NATIONAL credit card. Conversely, all the credit and charge card programs we looked at allow you to earn points with every purchase, plus include a range of retailers where you can earn bonus points.

While some programs have only one 'bonus point partner', others go into the thousands. When you're looking at the places you can earn bonus points, make sure there are outlets convenient to you, especially if you have to travel to shop, or you have limited chances to shop around.

The key to making reward programs work is to ensure they don't cost you more money than you'd normally pay. For example, buying groceries at the petrol station for points is probably going to cost extra, and it's a bad idea to stop comparing prices or good deals for the sake of a few points.

Rewarding credit

All the credit card reward programs are offered with cards that have interest-free days. Using the card and then paying off the balance before you have to pay interest is the best way of making a reward program work for you without getting into debt.

The other thing to consider is the cost of using your credit card. Each time you do, the retailer pays around 2% to 4% to the credit card company. To save this money, some retailers will give you a discount for paying cash.

Paying with credit for things you used to buy with cash isn't a problem as long as it doesn't mean you increase your debts. If this is happening and the

interest is adding up, you might want to reassess your new habits. You don't want to owe more in interest than you earn in rewards — none of the rewards we found was worth bankruptcy.

Rewards without credit

If using your credit card to earn points is getting out of hand, or you don't have a credit card, there are other rewards programs available.

FLY BUYS can be used without a credit card, but the limited number of retailers and the points system may mean it takes you a while to get off the ground. There are also rewards programs attached to the AMERICAN EXPRESS and DINERS CLUB charge cards, which you have to pay off in full every month but no interest is charged.

ANSETT Global Rewards and QANTAS Frequent Flyer give you reward points based on flights. The distance you fly and whether you fly economy, business or first class determine the points you get. You can also get points by hiring cars, staying in particular hotels or using other airlines connected to the program. Most of the credit cards we looked at that offer you flights do so by connecting to one of these programs.

Choosing your reward program

As well as the program suiting the way you want to use it, you also want one that's cheap, flexible and has rewards you can reasonably get. Before you sign up, decide if you want to aim for one reward or a range of different ones. The table on page 11 shows which programs offer what rewards. If you want to keep your reward options open, one that offers a choice may suit you.

To get the most from the program you choose you need to ask:

■ How long can you save points before they run out? The six cards offered by AMERICAN EXPRESS, AMP and CITIBANK have no time limit, so it's possible to aim for the big rewards. The rest allow you to save points for three to five years. Before you sign up, check to see when this time period starts. For some cards it's when you earn the points, for others it's at the end of the calendar year in which you earn them.

■ Are there any other discounts or benefits associated with the program?

■ Are there any restrictions on rewards?

Most of the programs have restrictions or specific conditions of some sort — for example, flights and accommodation may not be available during peak

Taxing rewards?

Originally there was some confusion about the tax treatment of rewards points earned on business trips. However, the tax department has decided that they aren't subject to fringe benefits or income tax. If you travel for work, check with your employer what the 'points policy' is: some companies may want to use the points for business travel, others may let you add them to your own program.

seasons, or there may be only a limited number of a particular reward.

■ How much are your rewards costing you? The AMERICAN EXPRESS and DINERS CLUB charge cards and reward programs cost over \$100 in your first year for joining and annual fees, and \$75 or \$80 respectively each year after that. If you're spending more on accessing the program than you're claiming in rewards, you may be better off saving your money.

■ Can you supplement your points with cash if your reward is out of reach? All the programs we looked at except those of AMERICAN EXPRESS, AMP, ANSETT, DINERS CLUB, FLY BUYS and QANTAS allow you to pay part of the reward in cash. COMMONWEALTH BANK True Awards only allows you to do this for some deals.

■ If it's a credit card, how can you pay off the balance if you don't have an account with that bank? All the credit cards we looked at, except the CITIBANK and WESTPAC cards, have access to BPAY, so you can pay your account over the phone (though WESTPAC says it will offer the service later this year). Some banks may also allow automatic transfers or direct debits.

■ If you don't think you've received enough information, ask for any brochures or catalogues and details on how rewards are calculated before you sign up, so you know what you're committing yourself to.

A flying comparison

When it comes to earning points, the ANSETT and QANTAS programs are almost identical. With both airlines you earn one point per kilometre travelling as a full-price economy passenger, 1.25 points in business and 1.5 points as a first-class passenger. There may be a small difference in how much you earn on a trip because of the way the distance is calculated.

When claiming rewards, the same number of points are required for flights with both programs. For accommodation and car hire it depends on the specifics, but on balance our analysis showed it takes fewer QANTAS Frequent Flyer points to claim the same non-flight rewards offered by ANSETT Global Rewards.

We couldn't include FLY BUYS in our comparison of programs because it doesn't operate like any other rewards program we assessed. You earn at least one point for every \$5 spent at participating retailers. You can also earn extra 'VIP' points at some retailers, while others may offer 'bonus' points from time to time, so the number of points you earn depends on where and when you shop.



Golden rewards

Some 'gold' credit cards provide benefits without your having to earn points. Free travel insurance, purchase protection insurance and extended warranties are some of the extras you can have access to if you have a gold card. If you qualify for a gold card, check with your bank to see what's on offer and shop around to find a gold card that offers the benefits you want.

Rating rewards

To give the programs a general score, we looked at how much it costs to join and belong to each one and how convenient it is, including how you accrue points and how long you can keep them for. The table opposite gives the score for this.

Then, for each reward category (flights, shopping, etc) we ranked the programs based on whether there's a range of rewards available and how much you have to spend to get them. All the comparisons we've done are based for consistency on 'base' points rather than 'bonus' points. If you use bonus retailers you may be able to claim rewards faster.

To use this information you can either:

- Decide what kind of rewards you're interested in and choose a card from our rankings, then check the details in the table.

- Choose a card from the table with a good program score that offers rewards you're interested in, then see how it ranks for specific rewards.

Pages 10 to 12 give you our CHOICE picks for each reward category.



CHOICE Picks: Flights

DINERS CLUB, WESTPAC Global Rewards and BANKWEST offer flights via the ANSETT Global Rewards program, while AMERICAN EXPRESS, AMP, CITIBANK Rewards, COMMONWEALTH BANK, QANTAS TELSTRA Visa and NATIONAL Gold Rewards are connected to the QANTAS Frequent Flyer program. If you're not already a member of either of these programs you'll have to pay a \$60 membership fee, and QANTAS also has an effective \$10 annual fee if you're not a Blue, Silver, Gold or Qantas Club member.

If you're converting points from AMERICAN EXPRESS, AMP or CITIBANK to the QANTAS or ANSETT programs, remember that while points don't expire under these programs, the limit on redeeming points with QANTAS and ANSETT is five years. For a comparison of the QANTAS and ANSETT programs themselves, see *A flying comparison* on page 9.

To rate the programs that get you flying, we looked at how many points you get per dollar and how many points it takes to fly Sydney/Melbourne return (booked 21 days in advance).

Companies offering flying rewards (not including QANTAS, ANSETT or FLY BUYS — see page 9), in rank order:

- DINERS CLUB charge card
- COMMONWEALTH BANK True Awards
- AMERICAN EXPRESS charge and credit cards
- AMP Rewards
- NATIONAL Gold Rewards
- WESTPAC Global Rewards
- TELSTRA Visa
- QANTAS TELSTRA Visa
- BANKWEST Extra (Visa Gold)
- CITIBANK Rewards
- BANKWEST Extra

CHOICE Picks: Shopping

Shopping rewards may mean a voucher you can spend at a range of retailers or items chosen from a catalogue. Whichever way you choose to redeem your shopping rewards, check the quality of the product before you 'buy' it. If you're buying from a rewards catalogue, check whether there are any postage or handling costs.

WESTFIELD Visa works differently from the other programs listed below. Rather than having set amounts for vouchers to be spent in set places, you can redeem any amount from 2900 points for shopping vouchers starting at \$10, to be used at any Westfield retailer.

Also available is the SHELL MasterCard, which gives you a 1% rebate (or 2% at some Shell stations) on Shell petrol for every dollar you spend. Unfortunately GE CAPITAL Consumer Card, the company that offers it, declined to give us information, so we can't include it in our comparison.

In our analysis of the programs below, we looked at how much you need to spend to get a \$100 reward (or the reward closest to \$100) and whether there are other levels of shopping reward available.

Companies offering shopping rewards (not including FLY BUYS — see page 9), in rank order:

- TELSTRA Visa
- COMMONWEALTH BANK True Awards
- AMP Rewards
- CITIBANK Football Visa
- CITIBANK Golf Link MasterCard
- CITIBANK Rewards
- QANTAS TELSTRA Visa
- NATIONAL Gold Rewards
- AMERICAN EXPRESS charge and credit cards
- BANKWEST Extra (Visa Gold)
- ANZ Visa FootyCard
- WESTFIELD Visa
- BANKWEST Extra

continued over page

Rewards programs

Company / program (in rank order)	Interest rate (%)	Joining fee	Annual fees*	Time limit for redeeming rewards (years)	Offers flight rewards	Offers shopping rewards	Offers travel rewards	Offers leisure rewards	Offers car discount rewards	Program score (%) **
CREDIT CARDS										
AMERICAN EXPRESS Blue	13.85 (A)	(C)	45 (D) (E)	No limit	✓	✓	✓	✓	✓	85
AMP Rewards	13.85 (B)	(C)	45 (D) (E)	No limit	✓	✓	✓	✓	✓	85
CITIBANK Rewards	16.95	(C)	30 (D)	No limit	✓	✓	✓	✓		84
TELSTRA Visa	16.35		28 (D) (E)	3 (H)	✓	✓	✓	✓	✓	81
WESTPAC GM	15.40		18 (D)	5 (J)					✓	78
CITIBANK Football Visa	16.95		40 (D)	No limit	(M)	✓	✓	✓		76
CITIBANK Golf Link MasterCard	16.95		40 (D)	No limit	(M)	✓	✓	✓		76
ANZ Visa FootyCard	16.35		30	3 (H)		✓				74
WESTFIELD Visa	16.50		30 (F)	3 (H)		✓		✓		73
COMMONWEALTH BANK True Awards	15.10	(C)	22 (E)	3 (H)	✓	✓	✓	✓		72
WESTPAC Global Rewards	15.40	(C)	40 (D)	5 (K)	✓		✓			71
QANTAS TELSTRA Visa	16.35	(C)	45	3 (H)	✓	✓	✓			68
BANKWEST Extra	15.40	(C)	24 (E) (G)	3 (H)	✓	✓	✓	✓		66
NATIONAL Gold Rewards	14.85	(C)	60	3 (K)	✓	✓	✓	✓		66
BANKWEST Extra (Visa Gold)	15.40	(C)	80 (E) (G)	3 (H)	✓	✓	✓	✓		48
CHARGE CARDS										
AMERICAN EXPRESS	30		75	No limit	✓	✓	✓	✓	✓	62
DINERS CLUB	30		80	5 (K)	✓		✓			61
OTHER PROGRAMS										
FLY BUYS				3 (J)	✓	✓	✓	✓		61
ANSETT Global Rewards	60			5 (K)	✓		✓			54
QANTAS Frequent Flyer	60	10		5 (H) (L)	✓		✓			39

* This is the annual card fee plus the annual program fee. If you need to join the Qantas flight rewards program to access rewards, add the \$10 annual fee if you're not a Qantas Blue, Silver, Gold or Qantas Club member.

** See *Rating rewards*, left, for details of what's included in this score.

- (A) A 15.85% interest rate applies if you have more than two late payments in six months or any dishonoured payments.
 (B) The interest rate is 9.95% for the first six months.
 (C) If you're not a member of the airline program needed to claim flight or travel rewards, add the \$60 joining fee.
 (D) The annual card fee doesn't apply in the first year.
 (E) The annual fee can be waived if you spend over a certain amount.
 (F) Fee waived for the first 100,000 customers.
 (G) Fees are waived if you're a member of the Bankwest program.
 (H) Time limit begins at the end of the calendar year points are earned.
 (J) Time limit begins at the end of the month when points are earned.
 (K) Time limit begins when the points are earned.
 (L) Flights must be booked within five years and taken within a year of booking.
 (M) Thomas Cook travel vouchers are available, which can be used to purchase flights. These aren't comparable with other flight rewards so aren't included in *CHOICE* Picks: *Flights*, left.

FAMILY ENJOYS LUXURIOUS HOTEL

Pam and Dave Quinn signed up for the **COMMONWEALTH True Awards** program 18 months ago.

"We've already had two nights at a resort hotel, which was excellent. We'd never have such luxuries otherwise as we couldn't justify the cost," says Dave.

The whole family enjoyed this weekend so much that they wanted to take the same reward again between Christmas and New Year. "Unfortunately a black-out period applied, so we couldn't go at that time," says Dave.



Rewards for other people

A different way of using your credit card for charity is with an affinity card, where a percentage of the amount you spend is given to the organisation linked to the card. Currently the Bank of Adelaide offers a Trees For Life Visa card, the Bank of SA has a National Parks MasterCard, Bankwest offers a Landscape Conservation Visa card and Colonial State Bank has a World Vision Visa card.

CHOICE Picks: Travel

All the programs we looked at in this category offer accommodation at a range of hotels for different point values — everything from a family room at a metropolitan hotel to golfing weekends at luxury resorts. If this sort of reward appeals to you, make sure you check whether points values are quoted per person, per night or for a total package.

All these programs also provide car hire — either as a voucher you can cash in or for a specific deal. AVIS, BUDGET, THRIFTY and HERTZ are all 'bonus partners' to the schemes they offer car hire rewards for, so you can earn extra rewards points with them too.

AMERICAN EXPRESS and QANTAS TELSTRA Visa only offer travel rewards through the QANTAS Frequent Flyer program, while DINERS CLUB and WESTPAC Global Rewards travel rewards are only through ANSETT. The others don't require an airline program. If rewards are

provided via the QANTAS Frequent Flyer program you have to convert your points to this program before you can claim a reward.

Companies offering travel rewards (not including QANTAS, ANSETT or FLY BUYS — see page 9), in rank order:

- COMMONWEALTH BANK True Awards
- AMP Rewards
- AMERICAN EXPRESS charge and credit cards
- DINERS CLUB charge card
- CITIBANK Football Visa
- CITIBANK Rewards
- CITIBANK Golf Link MasterCard
- TELSTRA Visa
- BANKWEST Extra (Visa Gold)
- QANTAS TELSTRA Visa
- WESTPAC Global Rewards
- NATIONAL Gold Rewards
- BANKWEST Extra

CHOICE Picks: Leisure/entertainment

The cards we looked at in this category have a large range of rewards, offering everything from dinner for two in a five-star restaurant to a New Year's Eve cruise on Sydney Harbour. The advantage of these rewards is that there's a wide variety of dollar values you can redeem your points for.

Companies offering leisure rewards (not including FLY BUYS — see page 9), in rank order:

- TELSTRA Visa
- CITIBANK Football Visa
- CITIBANK Rewards
- COMMONWEALTH BANK True Awards
- CITIBANK Golf Link MasterCard
- AMP Rewards
- AMERICAN EXPRESS charge and credit cards
- NATIONAL Gold Rewards
- BANKWEST Extra (Visa Gold)
- BANKWEST Extra
- WESTFIELD Visa

GM CARD WORKS "BRILLIANTLY" — ESPECIALLY FOR HOLDEN



Philip Worssam says his GM card worked "brilliantly" for him. It got him a \$2800 discount on his new Holden Barina in just two years. He achieved this by putting every possible expense on the card.

However, the card also worked brilliantly for Holden: "I feel now that the Barina was possibly not the best small car for us, but at the time I couldn't ignore the discount and so I didn't really look for alternatives," says Philip.

CHOICE Picks: Car rebates

We've assessed the programs below for the range of car discounts available and how much you have to spend to get one. If car discounts appeal, look at how many options you have. TELSTRA Visa offers the best value for points, though only on particular Nissans, with discounts of \$350 to \$700 for 5000 points, depending on the car. The WESTPAC GM card is for Holdens only, while AMERICAN EXPRESS offers Mercedes or Mitsubishi discounts. The AMP program only offers one possible car discount — \$2000 off a new Subaru.

The WESTPAC GM card works differently from the others we looked at. Instead of a points system you get a rebate of 5% of the amount you spend, or 6% at bonus retailers. The minimum reward you can claim is a \$50 discount and the maximum a \$3000 discount, based on the 'core rebate' of 5%.

Also available is the COMMONWEALTH BANK Volvo card, which is currently being reviewed so we can't include it in this assessment.

Companies offering car rebate rewards, in rank order:

- TELSTRA Visa
- WESTPAC GM
- AMERICAN EXPRESS charge and credit cards
- AMP Rewards

Smart new tools?

In conjunction with our European counterparts, we tested a new impact drill designed to switch off as soon as it hits pipes or electric wires, and a new multitasking sander that can handle a range of profiles.

Clever drilling?

Drilling holes in walls can be dangerous — you could puncture a water or gas pipe or drill into electric wiring, which could cause a short circuit or even a shock or electrocution.

The METABO SbE 808 Contact has a sensor that automatically switches the drill off if it hits an electrically conductive earthed material, such as water and gas pipes, or live electric wires — no matter what kind of drill bit you're using. If the metal isn't earthed, the drill won't react.

The sensor is automatically activated when you plug in the drill. However, if you want to drill into concrete with steel reinforcement or damp material like wet tiles, you can disable it, so it doesn't constantly switch off the drill.

Less than ideal result

We tested the drill on different materials containing embedded zinc-coated steel pipes and copper pipes, and electric wiring.

The drill's sensor detects the metals only on contact. While the drill switches off immediately, the bit is still turning. It left thick pipes intact, but

thin pipes were often damaged. Electric wires were also damaged or completely cut through, sometimes causing a short circuit. However, at least you know you've damaged something, and can repair it immediately.

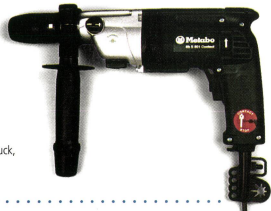
But the result could be worse. The front part of the drill's motor housing is made of metal and can become live if you accidentally drill into an electric wire that isn't protected by a safety switch. It's therefore important to use the second handle, as METABO advises, otherwise you're likely to hold the drill by the metal part and might receive an electric shock.

METABO SbE 808 Contact

Power: 800 W
Weight: 2.3 kg
Origin: Germany
Warranty: 1 year
Price: \$459

Features and accessories:

Two-speed, reversing, keyless chuck, second handle, depth stop, case, screwdriver-bit retaining bush.



Our verdict

While this drill can avoid damage to thick pipes, it doesn't give you the peace of mind or the safety you'd assume. You still need to use a metal detector to be safe. So we don't think it's really worth its price for the home user.

Sharp profile

Sanding decorative surfaces, such as picture rails and architraves, can be tedious work that, until now, you probably had to do by hand. The new BLACK & DECKER KA230EK multipurpose sander with a profile feature addresses this problem.

The sander comes with a round base (making it into a random orbital sander), a rectangular base with a triangular tip (making it a combination of 1/2-sheet and delta sander) and a base for profiles.

This can be fitted with six different profiles. While they probably won't exactly fit every type of profile you may encounter, you should be able to find one that comes close in most cases.

Good performance but some problems

Generally, the quality of the sanded surface was good, without scratches. However, if the shape you're working on is very different from the profile used, you need to be careful not to reshape it. You may still need to do some work by hand.

A downside is that the dust extraction system doesn't work effectively when you're sanding profiles. If you have to work at eye level this can become a nuisance.

During our tests the profiles' rubber attachment to the base plate was damaged. According to the distributor, the profiles are consumables and you should expect this (replacements cost \$2.95 each).

For normal sanding tasks the multipurpose sander is OK, except when a lot of timber or paint has to be removed from large surfaces.

BLACK & DECKER KA230EK

Power: 170 W
Weight: 1.5 kg
Noise: 77 dB
Origin: UK
Warranty: 2 years
Price: \$169

Features and accessories: Variable speed control, automatic brake system, kitbox, second handle, dustbag.



Our verdict

If you need a sander only occasionally, it may be an adequate (and cheaper) alternative to buying two or more specialised sanders. And its profile base is (so far) a unique feature that may save you some sanding by hand.

Which brands can you rely on?

Nothing lasts forever. When you're shelling out hundreds of dollars, it's worth considering a brand's reliability results as well as its performance.

IN BRIEF

- Some appliances are much more likely to break down than others. Choosing a reliable brand can save you a lot of money and hassle.
- With other products you don't have to worry so much about reliability — just choose a model that did well in CHOICE's performance tests.

IT CAN BE EXPENSIVE AND INCONVENIENT when a household appliance breaks down. So when you're buying a new one, how can you be confident that the one you choose will stay in good working order?

Our regular test results guide you on price, ease of use, performance, noise and so on, but we can't test for long-term durability. So we randomly survey our subscribers about the reliability of certain household appliances (see *Our survey*, below right). The results of these surveys are published with the relevant test reports, and the latest results are also gathered together here for your easy reference.

This article summarises the results of our last two surveys (from 1997 and 1998). Thirteen types of appliance were covered, and the owners were asked if theirs had needed repair in the preceding 12

months and whether they would buy the same brand again. Brand loyalty doesn't always correlate to reliability — there are other reasons people like or dislike a brand. For example, the most common reason given for not buying the same brand of clothes dryer, vacuum cleaner and dishwasher was 'too noisy' rather than 'breaks down too often'.

Figure 1, right, compares the overall reliability of the products, though the high score achieved by irons probably indicates that broken irons are more often thrown out than repaired. It does show, however, that too many VCRs, washing machines, dishwashers and home desktop computer systems needed repair.

Figure 2 indicates the average cost of repairing the various appliances. Air conditioners, fridges, home desktop computers, washing machines and



How to read the graphs

- The number in brackets after the brand name refers to the number of responses we received for that brand. In this report we've only included brands on which at least 50 people reported.
- No age limit was set for the appliances, which means the graphs might show results for brands that you can't buy new any more. However, it could be valuable information if you're shopping for secondhand products.

For each appliance on the following pages there are two graphs.

Reliability

The first graph shows you the percentage of each brand that didn't need repair during the 12 months before the survey. The black bars indicate how closely our survey results would be likely to reflect reality if we were able to survey all households. The shorter the bar is, the closer our results are

likely to be to reality. The bar gets shorter when there are:

- A high number of responses for the brand.
- A high proportion of models without problems for the brand.

To understand what the bars show, look at the survey results for dishwashers on page 16. **MIELE** had a higher percentage of models not needing repair than, say, **BOSCH**, but we can't say for sure that **MIELE** dishwashers are more reliable because their black bars overlap. On the other hand, we're confident that **MIELE** dishwashers are more reliable than all the brands listed below **BOSCH** because their black bars don't overlap the **MIELE** one at all.

Loyalty

The second graph tells you what percentage of survey participants would buy the same brand again. It doesn't always reflect the reliability results because there's more to brand loyalty than just reliability.

televisions were the most expensive, but it's worth noting that for all products repair costs varied widely. So these averages should only be considered as a general guideline.

Figure 1. Percentage of appliances repaired in the 12 months before the survey

(Figures in brackets indicate the number reported on for each product.)

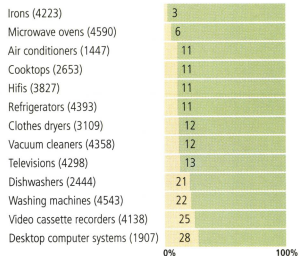
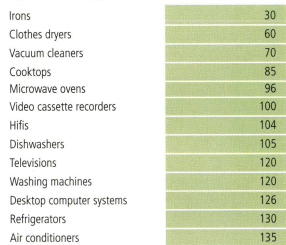


Figure 2. Average cost of last repair (\$)



Computers

Home desktop computer systems

Almost 40% of Australian households own a desktop computer, though for CHOICE subscribers it's closer to 60%. In our survey, responses were for a great variety of brand names, several of which were owned by fewer than 50 respondents. Unfortunately that's not enough statistically to be included in this report.

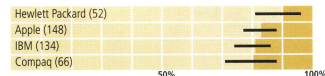
We've also had to restrict the results in our brand-name reliability and loyalty graphs to those computer systems in which all the components were the same brand — and about 70% of respondents said they had components that were a different brand from the main computer.

In the previous 12 months, one or more components in nearly three in 10 of the computer systems reported on in our survey had needed repair. This is the worst reliability record of all the appliances in this report, and we'll be monitoring the overall trend very closely as we get information on more brands.

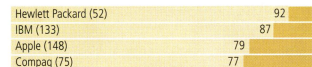
The most common hardware problems were with the hard disk drive, the mouse, the printer and the screen/monitor. In addition, more than one fifth of respondents said they'd experienced problems with their operating system during the 12 months before the survey.

- Age of products: 56% 0–3 years, 35% 4–8 years, 4% over 8 years.
- The last CHOICE tests: July 1998, 20 printers from \$169 to \$999; December 1997, six notebooks (laptops) from \$3390 to \$5595; December 1996, seven multimedia computers from \$2900 to \$4199. CHOICE's sister magazine, *Computer CHOICE*, tests computers and other hardware more regularly if you'd like more up-to-date information.

Percentage not needing repair*



Percentage who would buy the same brand again*



* These results are only for those systems where all components were the same brand.

We don't have enough information on the reliability of computer systems to make a definitive judgment yet, but this survey's initial findings suggest they're one of the products that is most likely to break down.



Our survey

We sent out questionnaires about the reliability of various appliances to random samples of CHOICE subscribers. We asked:

- When you purchased your appliance.
 - Whether you'd had any problems with it during the past 12 months.
 - Whether you'd had it repaired during the past 12 months. (Not all problems necessarily lead to repairs — you may choose to live with a broken timer rather than have it repaired, for example.)
 - How much any repair cost you.
 - Whether you would buy the same brand again.
- Many thanks to all who took part.

APPLIANCE RELIABILITY

Kitchen



Dishwashers

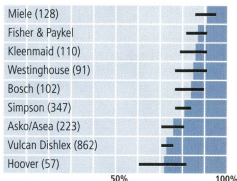
More than one in five dishwashers had needed repair in the 12 months before the survey. This poor level of reliability was recorded both for models with electronic controls and for those with mechanical ones. The average cost of dishwasher repairs was about \$105. Most problems were with the controls or switches, the pump or the door.

There was a broad range of reliability results and an even greater spread for buying the brand again.

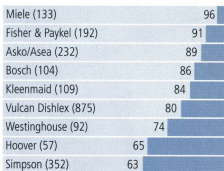
■ Age of products: 56% 0–5 years, 25% 6–10 years, 19% over 10 years.

■ The last CHOICE tests: July 1997, 15 models from \$749 to \$1799; July 1998, two-drawer Fisher & Paykel, \$1665.

Percentage not needing repair



Percentage who would buy the same brand again



Cooktops

Arranging your kitchen so that the cooktop is separate from the oven is becoming more popular. Approximately 55% of responses were for electric cooktops and 43% for gas, while just 2% used both.

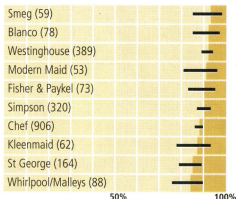
The survey results indicate that gas and electric cooktops are about equal for reliability. Overall, slightly more than one in 10 cooktops had needed repair in the preceding 12 months, with the average cost being about \$85.

While the brands were fairly close for reliability, there was a considerable spread of scores for buying the same brand again.

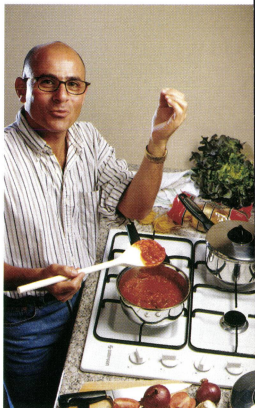
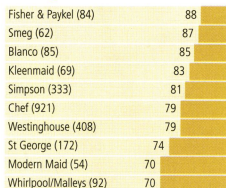
■ Age of products: 50% 0–5 years, 26% 6–10 years, 24% over 10 years.

■ The last CHOICE test: Jan/Feb 1998, 10 gas models with wok burners from \$499 to \$844.

Percentage not needing repair



Percentage who would buy the same brand again



Refrigerators

Although all sizes and types were included in the survey, three out of four responses were for medium or medium to large fridges (about 300–500 L). Frost-free models are clearly popular, accounting for more than half the responses. Only one in seven were for models with manual defrost.

The reliability of the brands was similar, but there were marked differences in brand loyalty.

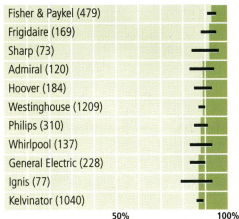
The most common complaint about fridges related to their door seals, which has been the major cause for complaint as far back as our 1995 survey. It could well reflect the fact that fridges overall last longer than their door seals — 65% of the surveyed models were more than five years old.

More than one in 10 fridges had been repaired during the 12 months before the survey, with the average repair cost being \$130.

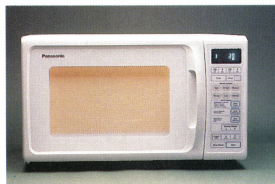
■ Age of products: 35% 0–5 years, 29% 6–10 years, 36% over 10 years.

■ The last CHOICE test: November 1998, 11 frost-free models around 400 L, from \$949 to \$1399 (with an update of two further models in March 1999).

Percentage not needing repair



Percentage who would buy the same brand again



Microwave ovens

Around 80% of Australian households now own a microwave — 92% for CHOICE subscribers. In our survey, three out of four responses were for microwaves with a turntable and more than half were for models of medium size (25–35 litres).

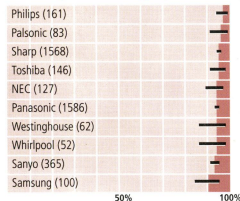
Only 6% of microwave ovens had needed repair during the 12 months before the survey, making them one of the most reliable household appliances. The average cost of repair was about \$96.

The brands were clustered closely on the reliability table, and while brand loyalty was generally high, owners of PALSONIC and SAMSUNG were less likely than most other owners to buy the same brand again.

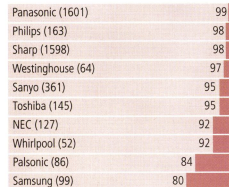
■ Age of products: 41% 0–5 years, 35% 6–10 years, 25% over 10 years.

■ The last CHOICE test: June 1997, nine models from \$219 to \$495.

Percentage not needing repair



Percentage who would buy the same brand again



Microwave ovens are one of the most reliable household appliances.

APPLIANCE RELIABILITY

Entertainment

Televisions

The survey asked about the household's main television. Half of the responses were for 48–51 cm models and slightly more than one third were for models with a screen of 63 cm or more.

The brands were fairly close to each other for both reliability and popularity with their owners, though TEAC slipped away from the rest a little at the bottom of the list for brand loyalty.

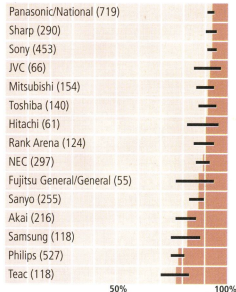
About one in eight TVs had needed repair in the previous 12 months, with the average cost of repairs being approximately \$120. A faulty picture was the most common problem.

The main reasons for not buying the same brand again were 'breaks down too often' and 'expensive to repair or service'.

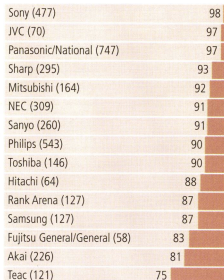
■ Age of products: 43% 0–5 years, 29% 6–10 years, 28% over 10 years.

■ The last CHOICE tests: See page 44 for our test of 34 cm models; May 1998, sixteen 51 cm models from \$449 to \$699.

Percentage not needing repair



Percentage who would buy the same brand again



Video cassette recorders

All types of VCR were included, and more than one third of the responses were for hi-fi models.

In general the reliability of VCRs is not good — it's the worst of all the common household appliances (excluding computer systems — see page 15). Maybe they get tougher usage in real life than manufacturers design for (perhaps they could learn from the figures): one in four of the VCRs surveyed had needed repair during the previous 12 months, with the average cost of repairs being about \$100.

While SONY's high position on the loyalty table was consistent with its high score for reliability, a large number of PANASONIC/NATIONAL owners said they would buy the brand again, even though its reliability rating wasn't up the top.

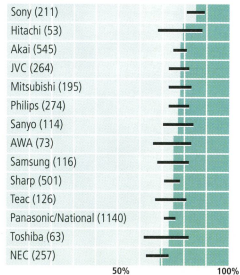
■ Age of products: 49% 0–5 years, 35% 6–10 years, 16% over 10 years.

■ The last CHOICE test: March 1999, 12 hi-fi VCRs from \$490 to \$650.

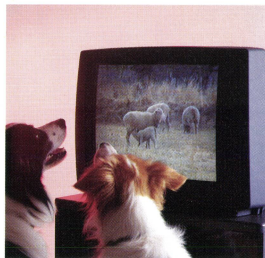
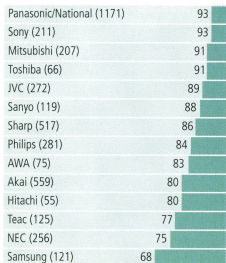


Video recorders: a poor reliability record.

Percentage not needing repair



Percentage who would buy the same brand again



Hifi systems

The survey asked about the main hifi system in the household. More than half of the responses were for 'full' systems (with a turntable), while the remainder was divided fairly equally between 'midi' and 'mini' (no turntable) systems.

About one in 10 hifi systems had needed repair in the 12 months before the survey. Most problems were with the CD player or tape deck. The average cost of repair was about \$104.

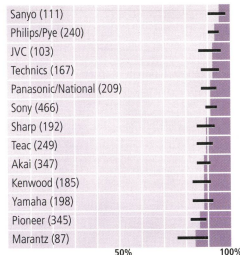
While SANYO was high up on the reliability graph, it didn't do as well in the brand loyalty stakes. TEAC had the lowest percentage of owners who would buy the brand again.

■ Age of products: 45% 0-5 years, 30% 6-10 years, 25% over 10 years.

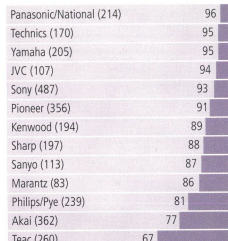
■ The last CHOICE test: December 1998, 10 budget mini hifi models from \$399 to \$599.



Percentage not needing repair



Percentage who would buy the same brand again



Cooling

Air conditioners

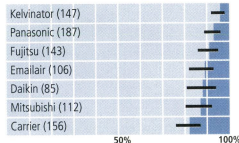
All types of reverse-cycle air conditioner were included in the survey. While split-system models are growing in popularity, with almost one third of responses being for this type, the most common air conditioners are still room units, which accounted for about half the responses.

In all, 11% of the models surveyed had needed repair in the preceding 12 months. Room units were reported to be the most reliable, followed by split systems and then ducted systems. The average cost of repair was \$135, making it the most expensive appliance to repair of those in this report.

■ Age of products: 59% 0-5 years, 18% 6-10 years, 23% over 10 years.

■ The last CHOICE test: November 1997, six split-system models from \$2399 to \$2889.

Percentage not needing repair



Percentage who would buy the same brand again



If your finances won't run to a reverse-cycle air conditioner, you may have to try more traditional methods of cooling down.

APPLIANCE RELIABILITY

Laundry

Iron

More than three quarters of the responses were for steam irons, and only 3% of respondents reported having their iron repaired during the preceding 12 months. This could indicate either that irons last well or that when they break down, they're more often replaced than repaired.

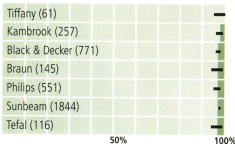
The average cost of repair was \$30.

Owners of SUNBEAM, BRAUN and PHILIPS were most likely to buy the same brand again, while TIFFANY scored lowest in this rating, even though none of the TIFFANY models surveyed had been repaired in the previous 12 months.

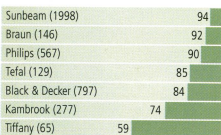
■ Age of products: 63% 0-5 years, 24% 6-10 years, 12% over 10 years.

■ The last CHOICE test: Jan/Feb 1999, 11 models from \$20 to \$50.

Percentage not needing repair



Percentage who would buy the same brand again



Irons: do people just buy a new one when they break down, rather than having them repaired?

Washing machines

The survey covered all types and sizes, with 86% of responses being for top loaders.

Of the products in this report, washing machines had the second-worst reliability record (not including computer systems), with more than one in five of owners saying their machine had needed repair in the 12 months before the survey. The reason most often given for not buying the same brand again was 'breaks down too often'.

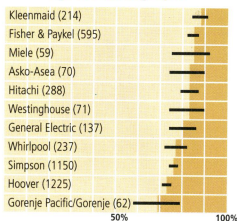
The average cost of repairs was approximately \$120.

Owners of GORENJE PACIFIC washing machines were the least likely to say they would buy the brand again — not surprisingly, perhaps, when you consider its reliability results.

■ Age of products: 40% 0-5 years, 32% 6-10 years, 29% over 10 years.

■ Most recent CHOICE tests: March 1999, 11 front loaders from \$995 to \$1400; September 1998, 20 models (mainly top loaders) from \$569 to \$1295.

Percentage not needing repair



Clothes dryers

This was the first time clothes dryers were included in a CHOICE reliability survey. All sizes were surveyed but about two out of three responses were for medium-sized models (3.5-5 kg). SIMPSON and HOOVER were by far the most commonly owned brands.

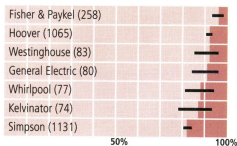
Brand loyalty was generally high, with 93% of owners saying they would buy the same brand again. FISHER & PAYKEL was the brand with the highest loyalty, as well as rating well for reliability. Although 18% of SIMPSON dryers had needed repair in the 12 months before the survey, the brand still rated well for loyalty.

The average cost of repairs was approximately \$60.

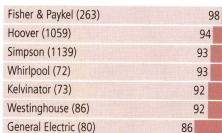
■ Age of products: 27% 0-5 years, 27% 6-10 years, 47% over 10 years.

■ The last CHOICE test: August 1998, 14 models from \$299 to \$469.

Percentage not needing repair



Percentage who would buy the same brand again





Cleaning

Vacuum cleaners

The survey included all types of vacuum cleaner. More than half the responses were for barrel cleaners, which was also the type of vacuum cleaner least likely to need repair. A quarter of respondents owned an upright.

It's interesting that a couple of brands that only have very expensive models — KIRBY and AMWAY, both of which cost well over \$1000 — score low for brand loyalty, in particular KIRBY with a score of 45% — by far the lowest for any brand in this group of products. We'll be reporting on performance tests of very expensive vacuum cleaners like these later this year.

The main reason given for not buying the same brand again was 'too noisy'.

The average cost of repairs was about \$70. The most common problems were with wands and hoses.

■ Age of products: 43% 0-5 years, 33% 6-10 years, 25% over 10 years.

■ The last CHOICE test: July 1998, 13 models from \$179 to \$249.

Percentage who would buy the same brand again

Fisher & Paykel (593)	95
Hitachi (285)	94
Miele (60)	93
Whirlpool (236)	92
Kleenmaid (210)	90
Westinghouse (73)	90
Asko-Asea (72)	89
Hoover (1222)	85
Simpson (1137)	85
General Electric (133)	80
Gorenje Pacific/Gorenje (62)	66



Percentage not needing repair

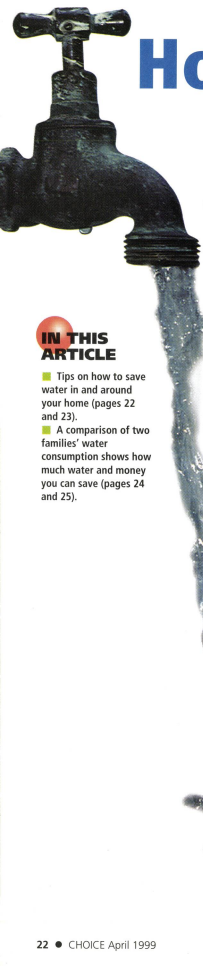
Black & Decker (50)	100%
Hitachi (128)	100%
General Electric (96)	100%
Panasonic/National (193)	100%
Philips (72)	100%
Sanyo (343)	100%
Volta (657)	100%
Nilfisk (89)	100%
Vax (238)	100%
Electrolux (677)	100%
Hoover (749)	100%
Amway (67)	100%
Kirby (84)	100%
Miele (216)	100%
Wertheim (207)	100%



Barrel cleaners generally don't pick up as much dirt as uprights, but they're handy if you have stairs or low furniture. Our survey showed they're also the type least likely to need repair.

Percentage who would buy the same brand again

Nilfisk (91)	91
Miele (221)	87
Panasonic/National (197)	86
Volta (661)	84
Philips (72)	83
Hoover (758)	82
Electrolux (684)	81
Hitachi (130)	81
General Electric (97)	80
Vax (245)	78
Sanyo (352)	74
Wertheim (207)	67
Amway (68)	66
Black & Decker (51)	61
Kirby (83)	45



How to save water — and money

Our growing population, agricultural needs, inefficient appliances and sometimes inconsiderate consumer behaviour put pressure on our water supplies. Here are some tips on how you can conserve water — and save money.

IN THIS ARTICLE

- Tips on how to save water in and around your home (pages 22 and 23).
- A comparison of two families' water consumption shows how much water and money you can save (pages 24 and 25).

FOR MOST OF US, WATER IS there at the turn of the tap. We easily take it for granted — and may waste it.

These days most water authorities urge people to reduce their water use, and supply brochures and pamphlets with savings tips. For them, conserving water means less need to spend money on new dams — instead, they can spend it on improving existing infrastructure.

For you, conserving water is likely to mean saving money, since most Australians already pay for their drinking water on a user-pays basis (or will soon have to): the more you use, the more you pay. In addition, if you're also saving hot water (for example, in the shower), you'll reduce your energy bill.

Our comparison of two families' water consumption on pages 24 and 25 shows just how much you can save, and the following tips tell you how to do it.

In the bathroom

- Buy a low-flow shower head, ideally one with a AAA-rating (see our test of water-efficient shower heads in *CHOICE*, December 1998, and *Check the As*, page 23). However, if you have an instantaneous hot-water system, the low flowrate of AAA- or AA-rated shower heads may not be enough to start it.

If you have a gravity-fed water system (the water flows from your tank to your taps without being pumped), make sure you buy a shower head that's designed to cope with low pressure.

- Try to limit your shower to about five minutes.
- If you have an older-style single-flush toilet, convert it to a 9/4.5 L dual-flush cistern. When you replace an existing toilet, install a modern 6/3 L dual-flush cistern and pan (see page 25 for more on this).
- Install water-efficient taps — ideally ones with a AAA-rating.
- With a single-lever mixing tap it's quicker to find the temperature you prefer, so you'll waste less water adjusting it.
- Aerators give the feel of a higher flowrate. They're simply screwed onto the end of a tap and reduce the flowrate while aerating the water.
- Switch off the tap while you're brushing your teeth or shaving.

In the kitchen

- If you're thinking about buying a dishwasher or are replacing your old one, make sure you buy a model with a AAA-rating.
- Always fully load your dishwasher, as you can't adjust the water level to the load — it always uses the amount for a full load.
- If you wash your dishes by hand, and when washing your vegies, don't do it under running water. Use a plug, and fill the sink with only the amount of water you need.

In the laundry

- If you're replacing your washing machine, make sure you get one with a AAA-rating.
- Consider buying a front loader. They may be

more expensive to buy than top loaders, but they're much more water and energy-efficient, use less detergent and will save you money in the long run.

■ Washing a full load is the most water-efficient. If you don't, you can adjust the water level accordingly on many machines. If you only have a few items to wash, do it by hand.

Looking for leaks

Leaks can be obvious (for example, a dripping tap) or hidden (such as a damaged pipe). Either way, they can waste a lot of water — and your money.

■ Fix leaks as soon as you find them.

■ A toilet may leak without any visible signs. To check, pour some drops of food colouring in the cistern. If after a while the colour appears in the pan (without flushing), you have a leak.

■ You can use your water meter to check your system for hidden leaks. Turn off all the taps and other water users in your home. Note your meter's reading. Check the reading again after some hours (for example, overnight) — if it's different, you have a leak.

In the garden

The right garden design, plant selection and watering tips depend a lot on where you live and how big your property is. While we can give you some general tips, most water authorities provide brochures with more detailed recommendations for your region (taking into account factors such as climate and soil conditions).

■ Use native plants and a type of lawn that are adapted to the climate in your area.

■ Group plants with similar water needs.

■ Don't water your garden in the heat of the day or when it's very windy, as a lot of water will evaporate or blow away before it can reach the roots.

■ Give your garden and lawn a good soak every two to four days in summer (about half as often in autumn and spring, and as needed in winter), rather than watering a little bit every day. That'll encourage deeper root growth.

■ Don't cut your lawn shorter than to three or four centimetres, so the blades can still shade each other.

■ Water the base of plants rather than their leaves.

■ Putting mulch on your garden will greatly reduce evaporation.

■ Use a sprinkler system with a timer, so you don't have to think about switching it on and off all the time.

■ Rainwater is ideal for watering your garden. Contact your water authority and local council for tips and requirements on how to install and maintain a rainwater tank.

Check the As

When you're shopping for a washing machine, dishwasher, shower head, toilet or tapware, look for the Water Conservation Rating label (right).

It tells you how water-efficient a product is — the more shaded As on the label, the more water-efficient the product:

■ AAA — excellent.

■ AA — high.

■ A — acceptable.

Find which models suit your needs, then buy the one with the most As.



More tips

■ Hosing down paths or driveways can waste up to 1000 L per hour. Sweeping them with a broom is cheaper and quicker.

■ Playing under a sprinkler or with a hose may be summer fun for the kids, but it also wastes up to 1000 L of water per hour.

■ A swimming pool cover can reduce evaporation considerably, so you'll have to top up less often.

Don't have the hose running while washing your car. Use a bucket and sponge instead, then give it a final rinse with the hose.



How to measure flowrate

Do you want to know what the current flowrate of your shower and taps is? You need a bucket, a watch that shows seconds, and a kitchen measuring jug.

- Turn on the tap to full flow.
- Collect the water in the bucket for 10 seconds.

- Use the measuring jug to measure the amount of water you've collected.

- Multiply this amount by six, and you have the approximate flowrate in litres per minute.

- Don't waste the water you've collected — use it to water your plants.

Contrasting neighbours — the Wastemuches and the Savealots

How much can you save by being water-wise? We calculated the average daily water consumption for two hypothetical families of four — the Wastemuches and the Savealots — and the amount of money the latter save each year, based on a water price of \$1 per 1000 L (a fairly average price around the country).

We've assumed they're inner-city neighbours, which means the majority of their water is used indoors — for example, in the shower, the toilet and the washing machine. Indoor water use is easier to compare than outdoor use, because typical behaviour and usage patterns (for example, how often you take a shower, or how often you run the washing machine or dishwasher) don't vary as much as outdoor usage, such as watering the garden, which can vary enormously. It can be between nil and more than 50% of your total water use:

- You may live in an apartment or an inner-city house with no or hardly any backyard or outside plants you need to water, or you may live on a quarter-acre block in the suburbs with plenty of lawn and a garden to take care of.

- You may live in a part of Australia with a temperate climate, or in a hot and dry area.

- You may or may not have a swimming pool you need to fill and top up.

We therefore haven't included outdoor use in our comparison. But you'll find some general tips on how to save water in the garden on page 23. The comparison between the two families is broken down to particular types of water use in the home.

Shower

Each family member takes one shower per day. Each of the Wastemuches spends 10 minutes under an older-style shower head that uses 18 L/minute. The Savealots limit their showers to five minutes, and have installed a water-efficient shower head with a AAA-rating (8 L/minute).

- Wastemuch: 720 L/day.

- Savealot: 160 L/day.

- Savealot saving: \$204 per year (of which \$146 is due to the water-efficient shower head and \$58 to the shorter showers).

In addition to the savings on their water bill, the Savealots will also save energy, because they don't use as much hot water.

Their shower head will have paid for itself after only a few months (in our test of water-efficient shower heads in CHOICE, December 1998, our recommended models cost from as little as \$18).

Toilet

On average, each family member uses the toilet at home four times a day. We assumed that all of them go to work or school, and use the facilities there during the day.

The Wastemuches have an older-style single-flush toilet which uses 12 L each time they press the button. The Savealot family has installed a modern dual-flush pan and cistern. It uses only 3 L for half-flush (which they use three times per person each day), and 6 L for a full one (which each person uses once daily).

- Wastemuch: 192 L/day.

- Savealot: 60 L/day

- Savealot saving: \$48 per year.

Modern dual-flush 6/3 L cisterns can't be fitted to an existing 12 L pan — they require one that's specifically designed for lower flush volumes. Replacing your whole toilet may not be worthwhile unless you're renovating your bathroom anyway. But if you do, make sure you get such a water-efficient toilet.

In the meantime, you may want to consider fitting a dual-flush 9/4.5 L cistern to your existing 12 L pan. In our scenario, this would save the Wastemuches about 100 L a day, and about \$37 per year.

Dishwasher

Each family uses their dishwasher once a day. The Wastemuches have an older model, using 40 L per wash. The Savealots have a AAA-rated one that does the same job with only 18 L.

- Wastemuch: 40 L/day.

- Savealot: 18 L/day.

- Savealot saving: \$8 per year.

While this is only a small saving, it means about 8000 L less water down the drain each year.

The next time you buy a dishwasher, make water efficiency one of your purchase criteria. Our tests show that water-efficient models can perform at least as well as less efficient ones, and can cost the same or less.

Washing machine

Each family runs their washing machine once a day on average. The Wastemuches have a typical top loader, which uses about 150 L of water in a normal program. The Savealots have a AAA-rated front loader that does the same job with about 75 L.

- Wastemuch: 150 L/day.

- Savealot: 75 L/day.

- Savealot saving: \$27 per year.

This may not be enough to make up the higher purchase price of front loaders over a washing machine.



chine's life span of about 10 years. However, a front loader will also save on your energy bill, especially if you regularly wash in warm or hot water.

Our tests show that front loaders can cost up to \$500 more than top loaders to buy, but will easily save you \$500 or more in combined energy and water costs over 10 years.

Bathroom tap

The members of each family brush their teeth and wash their hands the same number of times each day. However, while the Wastemuchers let the tap run while brushing teeth, the Savealots turn it off.

For each of the Wastemuchers, their older-style tap is running for five minutes each day (at 18 L/minute), while the Savealot's AAA-rated tap (8 L/minute) only runs for two minutes for each family member.

■ Wastemuch: 360 L/day.

■ Savealot: 64 L/day.

■ Savealot saving: \$108 per year (of which \$73 is due to the water-efficient tap, and \$35 to switching it off).

Car

Each family's car is washed once a week. The Wastemuchers use a running garden hose for 10 minutes (at 18 L/minute), while the Savealots use a bucket

(10 L) and sponge to wash the car, and the hose only for three minutes to rinse it off.

■ Wastemuch: 26 L/day.

■ Savealot: 9 L/day.

■ Savealot saving: \$6 per year.

While this is only a small saving, it means over 6000 L less water down the drain each year.

Cooking/drinking/cleaning

Both families use the same amount of water for these purposes, and there's not much they can do to save.

We've assumed that each family member uses 2 L per day.

■ Wastemuch: 8 L/day.

■ Savealot: 8 L/day.

TOTAL SAVINGS

The Wastemuchers use about 1500 L of water per day — or about 375 L per family member. By investing in water-efficient appliances and making some easy and sensible changes to their behaviour, the Savealots use only about 400 L a day, or 100 L per family member — without losing out on comfort.

Compared with the Wastemuchers, this saves them around \$400 per year on their water bill alone. In addition, their hot-water system doesn't have to work as hard, so they also save on their energy bill. □

How much could you save?

Check out the Water Saving Calculator on our website (www.choice.com.au/environment/savewater.asp). All you have to do is provide some information on your water use, and it'll tell you how much each area of your household is costing you — and how much water and money you can save by following our tips.



Getting on the Internet

Want to get connected to the Internet, but aren't sure how to do it? This short guide will help get you started.

Trouble tips

■ 486-based PCs may have an out-of-date part called a 8250 UART chip, which controls the speed of its communication parts. These chips weren't designed to handle the amount of information that passes between the computer and a modem that is faster than 9.6 kbps. If your connection to the Internet seems very slow this could be the problem. An upgrade to a newer 16550 UART chip should cost about \$70.

Windows 95 users can check their UART chip number by clicking Start, Settings, Control Panel, Modems. On the Modem Properties dialogue box that appears, click Diagnostics and then More Info — your UART chip number will be listed there.

■ Before signing up with an ISP, check that it gives you a local number to dial for Internet access. Paying STD rates will make it very expensive.

■ Check that help for setting up and configuring your system is free before you agree to use an ISP.

■ Shop around: our recent test of ISPs in *Computer CHOICE* found you can save as much as \$1500 a year.

IT'S NOT DIFFICULT TO ORGANISE AN Internet connection — but there are some pitfalls to avoid and a few things you'll need first.

Equipment

It's not necessary to have the latest whiz-bang computer — a 486-based PC with 8 Mb RAM or a Macintosh 68040 with 5 Mb RAM will do the job if all you want is to look at simple websites or send and receive email. Viewing multimedia websites or playing video downloaded from the Web is a little more demanding, but a 486 with nothing else running in the background should be sufficient.

You'll also need a **modem**. This plugs into your

telephone line and allows you to communicate with other computers. Generally, the faster it does this, the better, and we don't advise going below 28.8 kbps.

While you're connected to the Internet, your telephone line is busy. If you have 'call waiting' turned on, it may interfere with your connection if you receive an incoming call. You can get another line put in, but there are additional line rental and maintenance charges. It's best to wait and see how much you use the Internet first — or just turn call waiting off when you're online.

Services

Now you're going to need an **Internet service provider (ISP)** to connect you to the Internet. ISPs tend to advertise in newspapers, computer magazines and on TV. Look for some that offer their services in your area and compare their access plan costs. Ask friends who they're using and how happy they are with the service.

Once you've made a choice, call the ISP and ask to be sent new-user set-up instructions. Also ask for a set-up kit if there's one available — you may have to give details of your system to ensure you get the right kit.

Your first expense is likely to be a set-up or connection fee. Not all ISPs will charge you to open an account, but standard fees tend to be around \$25. On top of that, they'll probably ask for your credit card details, a deposit or a bond as security.

When the set-up kit arrives, read the printed material carefully. Check the details of your connection agreement in the same way you would any other contract. The instructions should explain how to configure your system, or advise you to use a supplied disk that will do it for you. If you have trouble, call your ISP's support line for help.

Check your set-up, plug in your modem and make a connection. Many ISPs will offer a number of hours' free access if you sign up with them. It's a good idea to use this time to make sure your Web browser, email and newsgroup software are working. □



What's an ISP and what does it do?

When you connect to the Internet, your computer becomes a part of a vast worldwide network of computers. An Internet service provider (ISP) offers you its computer as a jumping-off point. Your computer connects to the ISP's using your modem, and from there you can access the rest of the world.

■ To find anything on the Internet you need to find its address. ISPs keep a list of electronic addresses for other computers all over the world. When you type an address into your Web browser or email program, the ISP compares it to this list. If it's on the list, the ISP's computer makes the connection. If not, it will try another computer's list and keep trying lists until it finds the one you're looking for.

■ ISPs send and collect your email messages and store them for you when you're not connected.

■ If you want to build your own website, an ISP will probably be where you'll store it. Otherwise you'd have to leave your computer turned on and connected to the Internet all the time.

■ Most ISPs offer a service called a proxy server, where they store their customers' most often downloaded Web pages. This reduces the amount of time it takes to view these pages — which can save you money in connection fees.

Some manufacturers of fan-assisted electric convection heaters claim their products can warm a good-sized living area. But this depends very much on where you live and how well insulated the room is.



Nothing but hot air?

CONVECTION HEATERS DRAW cold air over an electric heating element. The warmed air then leaves the heater and rises towards the ceiling, while cooler air moves in to replace it. This circulation of air is called convection.

Large room still too cool

We tested eight models with a heating capacity of up to 2.4 kW in a poorly insulated room (5 x 5.8 x 2.4 m), simulating a medium-sized open-plan living area (see note 10, page 29, for details).

At an 'outdoor' temperature of 8°C, all the tested heaters struggled to bring this room to a comfortable temperature. But they're likely to perform better in a smaller or better insulated room, or if the outside temperature is higher than 8°C.

All the tested models have a fan, which enhances the convection effect by forcing the warm air out of the heater. When you're using the fan the room will heat up more quickly and evenly.

Without a fan, the air will form horizontal temperature layers, which could leave you with cold feet. The difference between the hottest spot in the room (at ceiling height right above the heater) and the coldest (on the floor at the opposite end of the room) was usually 10°C to 15°C.

Using the fan will break up these layers to a certain extent and reduce the temperature difference between ceiling and floor.

What to look for

- Make sure your heater has a thermostat, which means the heating element cuts in and out to maintain a fairly constant room temperature. Without a thermostat the heater would heat constantly (wasting energy), or you would have to switch it on and off manually to control your room temperature.
- A fan generally improves heater performance. However, be aware that it'll create some noise. So if you want to be able to heat quietly, make sure you can switch it off (see note 5, page 29).
- Check the table on pages 28–29 for more features you may find useful.

IN BRIEF

- The tested models will struggle to bring a medium-size living area to a comfortable temperature, unless it's very well insulated.
- Two of the tested models were badly damaged when they failed our test that simulated a towel or clothing being dropped on top of them while they're operating (see note 8, page 29, for details).

WHAT TO BUY

VULCAN Diablo 4860002 (A)	\$269
GOLDAIR 8100 (B)	\$179
EWI Klima 235TLG (C)	\$90



(A) This model is ivory/sand. It's also available in silver/beige (Diablo 4860001, \$269).

(B) Also available without a timer (8050, \$139).

(C) Also available with a timer (Clima 242TLGT, \$110).

CONVECTION HEATERS

Brand / model (in rank order)	Manufacturer / distributor	Origin	Target price (\$)*	Warranty (years)	Dimensions (H x W x D; mm)**	Weight (kg)	Number of heat settings (corresponding heating capacity in W)	Number of fan settings	Time to heat (min)
VULCAN Diabolo 4860002 (A)	Southcorp Heating & Cooling	Australia	269	2	515 x 670 x 150	8.3	3 (850 / 1680 / 2380) (D)	3	✓
GOLDAIR 8100 (B)	Thebe International	China	179	1	425 x 670 x 100	5.4	3 (930 / 1500 / 2300) (D)	1	✓
EWI Klima 235TLG (C)	EWI Heating	Hungary	90	2	455 x 740 x 115	4.7	3 (1010 / 1320 / 2320) (D)	1	(C)
DIMPLEX EC1	Dimplex	UK	169	1	425 x 660 x 95	5.2	2 (1220 / 2490)	1	
DeLONGHI HN2ST	Gantech	Italy	129	1	430 x 610 x 100	4.0	3 (1000 / 1470 / 2360) (D)	1	
OMEGA Bi Turbo 9616	Omega Appliances	Italy	129	2	470 x 750 x 170	6.7	3 (1050 / 1490 / 2410) (D)	1	
OMEGA Compact T 9704	Omega Appliances	Italy	149	2	475 x 570 x 175	4.6	2 (1010 / 2340)	1	
MARTEC MHC7050	Martec	China	89	1	435 x 605 x 110	5.1	2 (1090 / 2210)	1	

BEST BUY

PROFILES

The heaters in the *What to buy* list are profiled in rank order. Prices shown are a good target to aim for when shopping around, based on manufacturer information in December 1998.



VULCAN Diabolo 4860002

Target price: \$269

This model has a control cover intended to prevent children from playing with the controls, but it may also make access to them difficult for someone with a disability (see photo, page 29).

Good points

- Fastest heat-up time.
- Thermostat keeps average room temperature very stable.
- Good grips for lifting, and castors.
- Not damaged in the towel test (see note 8, right).

Bad points

- Relatively poor heat distribution, which means the test room wasn't heated very evenly.
- Fan can't be switched off, which is annoying if you want silence.
- No frost watch function (see note 2, right).
- The heaviest model in the test.
- Initially failed the cord anchorage test (an electrical safety test), but passed after we properly tightened the cord clamp.



GOLDAIR 8100

Target price: \$179

This model has a water container that can be used to humidify the air. However, it could also be quite easily removed by a curious child.

Good points

- Thermostat keeps average room temperature very stable.
- Good heat distribution, which means the test room was heated evenly.
- Very easy to lift.
- Controls very easy to read and use (except the timer).
- Not damaged in the towel test.

Bad points

- Relatively slow heat-up time.
- The handles can get quite hot.
- Difficult to move over carpet.
- Noisiest model in the test, though the fan can be switched off.



EWI Klima 235TLG

Target price: \$90

Good points

- Thermostat keeps average room temperature very stable.
- Good heat distribution.
- Not damaged in the towel test.

Bad points

- Relatively slow heat-up time.
- The fan control button is located on the front panel, and pushing it may tip the heater backwards.
- Difficult to move over carpet.

BEST BUY

What about the others?

- The DeLONGHI, both OMEGA models and the MARTEC didn't do as well in our heating performance tests.
- The DIMPLEX, both OMEGA models and the MARTEC weren't as easy to use.
- The DIMPLEX and the MARTEC failed the towel test.

2	3	4	5	6	7	8	9	10	11	
Frost watch function	Thermal cutout	Tilt switch	Fan can be switched off	Fan only option	Fan noise (dB)	Towel test	Ease of use score (%)	Performance score (%)	Overall score (%)	Brand / model (in rank order)
✓	✓				50 (E)	Pass	78	82	81	VULCAN Diablo 4860002 (A)
✓				✓	57	Pass	76	78	77	GOLDAIR 8100 (B)
✓			✓	✓	53	Pass	68	77	74	EWI Clima 235TLG (C)
✓		✓	✓	✓	54	Fail	64	71	69	DIMPLEX EC1
✓				✓	49	Pass	70	61	64	DeLONGHI HN25T
		✓		✓	54	Pass	60	64	63	OMEGA Bi Turbo 9616
	✓	✓	✓		48	Pass	58	58	58	OMEGA Compact T 9704
	✓	✓	✓	✓	53	Fail	52	59	57	MARTEC MHC7050

* Prices shown are a good target to aim for when shopping around, based on manufacturer or store information in December 1998.

** Rounded to the nearest 5 mm.

(A) This model is ivory/sand. It's also available in silver/beige (Diablo 4860001, \$269).

(B) Also available without a timer (8050, \$139).

(C) Also available with a timer (Clima 242TLGT, \$110).

(D) The third wattage isn't necessarily a sum of the first two because the settings will have a slightly different wattage, depending on whether they're operating separately or together.

(E) On highest setting.

1 Timer

A tick in this column means you can program the heater to switch on and off at selected times. Note that some models come in versions with and without a timer, as noted.

2 Frost watch function

All the tested models have a thermostat that allows you keep the temperature at a fairly constant level. Models with a 'T' in this column have a thermostat setting that switches the heater on if the temperature falls to 5°C. Models with an 'A' will be activated when the temperature reaches 5°C even if the thermostat is turned to the off position.

3 Thermal cutout

This safety feature is designed to prevent the heater from overheating should the thermostat fail.

4 Tilt switch

This safety feature is designed to switch the heater off if it's tipped over.

5 Fan can be switched off

While all the tested models perform better with the fan switched on, you may want to switch it off to avoid its noise. If a model doesn't have a tick in this column, this means the fan can't be switched off while the heating element is on.

6 Fan only option

A tick in this column means you can operate the fan without heating, such as for cooling in summer — though its effect could be limited.

7 Fan noise

The noise measurements indicate that the fan would be noticeable as a low to moderate murmur in the background.

8 Towel test

In this test, a towel is draped over a heater that's running on its highest setting, simulating what could happen if

a towel or clothing were accidentally dropped or left on it. Ideally, the thermal cutout switch should protect the heater from being damaged, and the towel from catching fire. However, our test showed the thermal cutout switches on the MARTEC and DIMPLEX to be working poorly — although neither the towel nor the heater caught fire, these models suffered severe damage to their fans.

9 Ease of use score

We assessed the following:

- Use of controls.
- Visibility and clarity of markings.
- Ease of lifting and carrying.
- Mobility on carpet.
- Ease of cleaning.

10 Performance score

The heaters were tested in a room measuring 5 x 5.8 x 2.4 m (simulating a medium-sized living area) with an insulated plasterboard ceiling and relatively thin, uninsulated walls. We assessed the following:

- **Heating speed:** The time the model took to heat up the room by 5°C.
- **Temperature distribution:** How evenly the model heated the room.
- **Thermostat performance:** How well the model's thermostat managed to maintain a selected average room temperature, regardless of how evenly the heat was distributed.

11 Overall score

The overall score is a combination of ease of use and performance, weighted as follows:

- Ease of use: 30%.
- Performance: 70%.

New models

We had to buy the models for this test last winter — heaters don't appear in the shops until autumn, which wouldn't allow us to bring you test results in time for this heating season.

So when you're shopping around for a convection heater, you may find new models we couldn't include in this test.

The Vulcan has a control cover intended to stop children playing with the controls, but if you have any dexterity problems you could find it awkward to use.



Your heating options

Want to save money on your energy bills, but still be warm in winter? Or keen to reduce your household's contribution to the greenhouse effect? Read on.

IN THIS ARTICLE

■ The pros and cons of the main heating fuels (pages 30–31), what they'll cost and how much they contribute to the greenhouse effect (page 33).

■ Which heater to use for which purpose (pages 31–32).

■ Heating tips that'll save you money (page 34).

■ How to calculate the heating needs for your house (page 35).

DID YOU FREEZE LAST WINTER? DID you huddle round a clearly inadequate heater? Were you in shock after reading the energy bill? Then it may be time to change the way you heat your home.

What fuel and what heater?

First, go back to basics: are you using the right fuel for your needs? Consider what's available (for example, can you get natural gas in your neighbourhood?), the fuel's cost (can you perhaps get cheap or even free firewood?) and its environmental impact (for example, does your electricity supplier offer a green-power scheme).

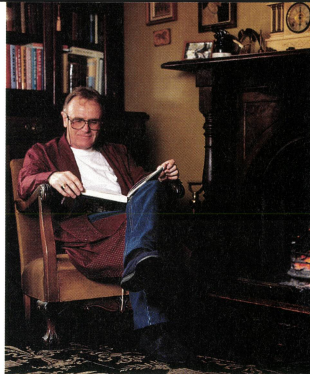
Once you've decided on a fuel, you need to find the right type of heater. Do you want to heat a person, a room or your whole house? And you need to calculate the right size of heater for your needs. Use our calculator on page 35 for an estimate. It takes into account factors such as whether you have insulation and the size of your windows.

Watt's a joule?

Energy is measured in joules (J). The rate at which energy is used over a period of time is measured in watts (W), with one watt being the use of one joule per second.

Joules and watts are used to rate different types of heater. Gas heaters are rated according to the energy that goes into them each hour in megajoules (MJ = one million joules). Electric heaters, on the other hand, are rated in kilowatts (kW = one thousand watts).

You can compare the capacity of heaters with such different ratings. For example, an electric heater with a rating of 1 kW running for one hour uses one kilowatt hour (kWh). This is equal to 3.6 MJ (1000 Wh x 3600 seconds per hour).



What fuel?

Each type of fuel has its advantages and disadvantages.

Electricity

Pros

- It's available almost everywhere.
- Some power companies offer a subscription to a green-power scheme, where you pay a slightly higher rate per kWh for electricity that's generated from renewable sources such as solar, hydro, wind or biomass.
- Electric heaters are very energy-efficient, and don't produce pollutants in your home.
- You don't need to store fuel.

Cons

- Heating with portable electric heaters can be relatively expensive.
- While the heaters themselves don't produce pollutants, power plants that generate electricity by burning fossil fuels produce considerable amounts of the greenhouse gas carbon dioxide (CO₂) and other air pollutants. That's why heating with electric radiant, convection and off-peak heaters produces the largest amount of carbon dioxide of all the heating options in our comparison (except in Tasmania, where most of the power is generated by hydroelectric schemes; see the table on page 33).
- While the heaters themselves are energy-efficient, there's considerable energy loss during the generation and transport of electricity — up to 70% of the original energy contained in the fuels used to produce the electricity.
- If you have a power cut — for example during a storm — you have no heating available.
- The heating capacity of portable electric heaters



Looks cosy — but an open fire is a very inefficient form of heating.

is limited to 2.4 kW, which may not be enough to comfortably heat large areas (see our test of convection heaters, page 27).

Natural gas

Pros

- Generally much cheaper than heating with portable electric heaters.
- Generally produces much less carbon dioxide than heating with electricity (except reverse-cycle air conditioning).

■ The heating capacity of portable gas heaters isn't as limited as with portable electric heaters.

■ Gas heaters carry a star label that tells you about their energy efficiency: the more stars, the more efficient they are.

Cons

- Not available everywhere.
- Produces combustion gases, so you either need to install a flue or you have to live with and manage the gases in your home (see also *Gas water heater warning*, page 4).

Solid fuels

Firewood should be well seasoned (left to dry for at least two summers) so you don't waste energy evaporating water by burning green wood.

Hardwood contains more energy than softwood, and burns longer and more steadily. But it's also harder to light. Softwood can spit and spark in open fires.

Coal has a high energy content. It can be burnt in many slow-combustion heaters, but you'll probably need to use fire lighters or light a woodfire first to get it started.

Pros

- Wood and coal are available almost everywhere.
- Wood heating can be very economical because a lot of people — particularly in rural areas — may have cheap or even free access to firewood (however, check whether you need a permit to collect firewood from forests).
- If firewood is used sustainably (by regrowing the amount that's used — see *What will it cost in \$ and CO₂* on page 33 for more on this) and burned in a slow-combustion heater, it produces the least amount of CO₂ of all the fuels in our comparison.

Cons

- You need somewhere to store wood or coal.
- You have to load the heater or grate, start and maintain the fire and dispose of the ash.
- Apart from modern slow-combustion heaters, solid-fuel heaters are less energy-efficient than electric and gas heating (see page 32 for more on this).
- They produce combustion gases and need a flue or chimney, which makes installation expensive.
- The smoke from wood and coal fires contributes to air pollution.

What you're heating

Once you know which fuel you want to use, you need to decide on the type of heater. Do you just want to heat a person, a room, or your whole house?

If you want to heat a large area for long periods, you need an efficient heater with low running costs. So it may make sense to pay more initially for the heater and its installation, because it'll pay off in the long run.

If you only want to heat a small area or use the heater only occasionally, you probably want a heater that's cheap to buy, even if it's dearer to run than more expensive types.

For an indication of the heating capacities of different heater types and their prices, see *CHOICE test reports*, right.

Heating a person

Electric

- Portable radiant or fan heater

These supply almost instant heat, but only within a relatively small area.

Heating a room

Electric

- Portable oil-filled column heater or convection heater
- Their heating capacity is limited to 2.4 kW, so they're suitable for areas like bedrooms and small to medium living areas. Their effectiveness will depend on the climate and how well insulated the room is.

If they're not fan-assisted, they heat the room quite slowly. With or without a fan, they're not fast space heaters and so are better for rooms that need heating over long periods. Look for models with a thermostat and a timer.

See also our test report on convection heaters on page 27.

- Off-peak storage heater

This type of heater uses cheap off-peak electricity during the night to heat up a storage material (usually bricks). This heat is then released into the room

CHOICE test reports

We frequently test heaters and have listed our most recent reports below. Prices quoted refer to the time of publication but can still give you an idea of the price ranges and the cost differences between heater types.

- Electric convection heaters (in this issue, page 27).

■ Bathroom heat lamps: April 1998, 20 models from \$88 to \$269.

■ Split-system reverse-cycle air conditioners: November 1997, six models from \$2250 to \$2889, 6.3 to 7.8 kW heating capacity.

■ Oil-filled column heaters: May 1997, seven models from \$189 to \$329, 2.4 kW.

■ Decorative-effect flued gas heaters: May 1996, seven models from \$1300 to \$2250, 30 to 37 MJ gas input.

■ Reverse-cycle air conditioners for installation in a wall or window: November 1995, 14 models from \$700 to \$1075, 1.9 to 2.8 kW heating capacity.

during the day. Storage heaters are less flexible than other types, and you may need an extra heater in the evening if they run low on stored heat.

■ Reverse-cycle air conditioner

These use electricity to 'pump' heat from one place to another. Even on a cold day, the outside air contains heat that can be pumped inside.

Air conditioners are rated according to their heat output, which is higher than their electricity input, giving them an efficiency of up to 250%. However, their efficiency declines the colder it gets outside.

Room air conditioners come as wall or window units and as split systems, which are much quieter because the working part (compressor) is installed outside the house. Larger models may require a separate electric circuit.

Gas

■ Unflued radiant and/or convection heater

Unflued heaters vent their combustion gases (carbon monoxide, nitrogen dioxide, water vapour) into the room. In Victoria you're not allowed to use unflued natural gas heaters for that reason (unflued liquefied petroleum gas (LPG) heaters can be used under certain conditions). NSW, Queensland, SA and WA also restrict the use of unflued natural gas and LPG heaters.

We recommend you ensure good ventilation when using one — particularly because of the water vapour, which could otherwise cause problems with condensation. For safety reasons, unflued gas heaters aren't suitable for bedrooms and bathrooms.

You can get them with a heating capacity from around 8.0 MJ to over 25 MJ per hour (depending on the size of your room), and they use almost all the heat that's contained in the gas (up to 90% efficiency), though the necessary ventilation can cause additional heat loss. They're usually portable (which

is handy if you have a gas connection in several rooms), and easier and cheaper to install than flued heaters.

■ Flued heater

Flued heaters come as console (standing against a wall), inbuilt or log-fire-imitation models. They cost more than unflued models because of the flue installation. But as the combustion gases are vented outside, you won't have the problems mentioned for unflued heaters.

Flued heaters are particularly suitable for liv-

ing areas and bedrooms. However, they're less efficient than unflued heaters (up to 75% efficiency), because part of the heat is lost with the gases through the flue.

Solid fuels

The key to efficient solid-fuel burning is to control the air supply, so that the fuel doesn't burn too fast and heat isn't lost.

■ Open fire

Open fires may be romantic and nice to look at, but they only produce very localised heat and they're very inefficient: around 85% of the energy is lost straight up the chimney. In most places you'd need an additional heater.

■ Non-airtight stove

Non-airtight stoves, such as pot-belly stoves, get very hot and supply mainly radiant heat. You can't accurately control the air supply to the fire.

They have an efficiency of around 30%, and aren't suitable for heating large areas over long periods of time. However, they're relatively cheap, so could be considered for areas that only have to be heated occasionally.

■ Slow combustion

Modern slow-combustion stoves have an airtight firebox, and air inlet controls to regulate the amount of air supplied to the combustion chamber. They're up to 70% efficient and must comply with Australian standard requirements regarding their flue gas emissions.

Manufacturers of slow-combustion heaters usually state the size of the area you can heat with any particular model. However, the heat output depends on various factors, such as which fuel you use, how damp it is and how you load and maintain the heater.

Small, medium and large slow-combustion heaters are available. Small models (with a heat output of up to 15 kW) are the most commonly used for room heating, with radiant models (without a fan) being able to heat areas of up to 90 square metres, and convection models (with a fan) heating up to 130 square metres.

Heating a house

Electric

■ Ducted reverse-cycle air conditioning

Such a system consists of a compressor (which can be installed outside or in the ceiling space, for example) and ducted outlets in the rooms you want to heat or cool. It's very efficient, but installation can be costly — consider it if you're building or renovating a house.

■ Underfloor heating

For this type of heating, electric wiring or water pipes are installed into the concrete floor slab. The slab is



heated, using cheap off-peak electricity or hot water (in which case you can use a gas heater to heat the water if gas is available). It then releases the stored heat during the day, in a similar way to an off-peak storage heater. The substantial construction work required for this type of heating means it's more appropriately installed when a house is being built.

Gas

■ Ducted gas central heating

This system consists of a gas furnace (which can be

installed outside or underfloor) and ducting vents in the rooms you want to heat. A ducted system may work out cheaper to run than two gas space heaters, though installation costs are usually much higher.

Solid fuels

■ Slow-combustion stove with heat shifters

This type of heating consists of a slow-combustion heater in one room, connected to a system of ducts and fans in the ceiling space that shift warm air to other rooms.

HEATING A HOUSE — WHAT WILL IT COST IN \$ AND CO₂?

Carbon dioxide production (tonnes) and heating cost (\$) per year

Heating type	Adelaide		Brisbane		Canberra		Hobart		Melbourne		Perth		Sydney	
	Tonnes	\$	Tonnes	\$	Tonnes	\$	Tonnes	\$	Tonnes	\$	Tonnes	\$	Tonnes	\$
Natural gas — flued (A) (B)	1.3	210	0.3	90	3	520	na (D)	na (D)	2.6	380	0.5	90	0.9	160
Electric radiant and convection	4.5	550	1	120	11	1320	0.7	1380	12.6	1080	1.9	230	3.4	410
Electric off-peak storage	5.2	210	1	40	12.5	500	0.8	520	14.3	410	2.2	90	3.9	150
Electric air conditioning	1.3	160	0.3	30	3.1	380	0.2	400	3.6	310	0.6	70	1	120
Wood — open fire (C)	0.3	1540	0.1	370	0.8	3290	0.8	2030	0.7	3570	0.1	480	0.2	1440
Wood — slow combustion (C)	0.06	280	0.01	50	0.14	610	0.14	370	0.12	640	0.02	70	0.04	240
Coal — slow combustion	2.3	310	0.5	70	5.7	760	5.4	720	4.8	640	0.9	120	1.8	240

(A) LPG produces the same amount of CO₂ as natural gas, but is considerably more expensive.

(B) The computer program doesn't deal with unflued gas heaters.

(C) The CO₂ figures refer to firewood that's replaced by new trees, and would be considerably higher if it wasn't (see *How we calculated*, below).

(D) Not applicable — no piped natural gas is available in Tasmania.

How we calculated

■ Our calculations of CO₂ production for the different types of heater and fuel are based on the Australian Home Greenhouse Scorecard — a computer program developed by Sustainable Solutions for the Environment Protection Authority in Victoria.

■ The figures in the table are for a 160 m² house with an insulated ceiling. We assumed that the same number of rooms is heated in each city: for a short period of time each day in Brisbane, a medium period in Adelaide, Perth and Sydney, and a long period in Canberra, Hobart and Melbourne.

■ The figures give you an idea how much CO₂ per year the heater types produce relative to each other, and of their running costs per year. However, they're approximate only, based on the assumptions in our scenario and in the software we used. A different scenario would lead to different numbers of tonnes and dollars, but the relativities would still be valid.

■ All figures have been rounded to the nearest 100 kg of CO₂ (except for Wood — slow combustion, where the figures are very small) and to the nearest \$10.

■ In most states and territories, each kWh of electricity you use produces on average about 1 kg of CO₂. Exceptions are Tasmania, where a high percentage of power is generated by hydroelectric schemes (1 kWh produces only 0.06 kg of CO₂), and Victoria, which uses a lot of brown coal for power generation (1 kWh produces 1.4 kg of CO₂). If you've subscribed to a green-power scheme, it may be less for you as an individual.

Our calculations are based on energy costs of 12 cents per kWh for portable electric heaters and air conditioners, and four cents per kWh for off-peak storage heaters.

■ One MJ of natural gas or LPG produces about 0.06 kg of CO₂. Domestic gas prices vary a lot between cities, and we calculated with a typical rate for each. In Adelaide, Brisbane and Perth you pay less per MJ than the more gas you use — a price structure that's sending the wrong message, as it doesn't encourage energy-wise behaviour. LPG is considerably more expensive than natural gas.

■ Plants use CO₂ from the air for their growth. Burning wood releases the carbon stored in it and produces about 1.5 kg of CO₂ per kilogram of wood.

However, if it's used sustainably (which means that what you burn is replaced by new trees), the new trees will use CO₂ again for their growth — theoretically just as much as you produced by burning the wood. In that case — which we assumed in our calculations — all you have to take into account is the CO₂ produced when transporting the wood home: 0.03 kg of CO₂ per kilogram of wood.

We calculated wood costs with a typical bulk price (for one tonne) for each city. It's likely to be cheaper if you live in a smaller city or in the country — you may even have access to a free supply. If you have to buy your firewood, do so in summer if possible, as prices often increase in winter.

■ Each kilogram of coal produces about 2.62 kg of CO₂. Coal prices can vary a lot, depending on where you live and the quality of coal you buy. We calculated with an average price of \$350 per tonne.

Heating tips

Reducing the amount of heating you use will save you money and give you a clearer environmental conscience. The following tips show you how you can save and still be comfortable.

Insulate your ceiling and walls

Insulated ceilings and walls reduce the heat flow between the inside and the outside of your house, keeping it warmer in winter and cooler in summer.

An insulation's R-value describes how effective it is: the higher the R-value, the better the insulation works as a heat flow barrier.

The Australian standard recommends R-values for the ceiling of around 2.5 to 3 for most coastal areas of Australia, and of around 3 to 4 for inland locations. As a comparison, an uninsulated roof and ceiling have an R-value of about 0.35.

The most commonly used insulation materials are fibreglass, rockwool, cellulose and wool (see CHOICE, August 1997, for a test report on the flammability of some insulation materials).

■ An insulated ceiling should be a number one priority for every house owner (1).

Draughtproofing

Use a lighted candle around windows and doors to find draughty spots in your home. Fix draught stoppers on doors (2) (particularly on external doors), draughtproof your windows with insulation strips, and close off unused pet doors (3) and open fireplaces (4).

Windows

Single glass has an R-value of only 0.17, so windows are only a minor barrier to heat. Cover them during the night with heavy curtains or blinds to reduce heat losses (5). However, don't cover north-facing windows during the day, to take advantage of the winter sun.

Ventilation

The better insulated and draughtproofed your house is, the more important it is to have adequate ventilation. Otherwise the air can't be exchanged often enough. Pollutants (especially from unflued heaters) may accumulate and condensation can cause mould and mildew to grow.

Open some windows for a few minutes several times a day (cross-ventilate, if possible), rather than leaving a window partly open all the time — you'll lose less heat that way.

Other tips

- Close the doors between heated and unheated areas (6).
- Don't heat the rooms to tropical temperatures. Heating them to only 20°C instead of 23°C probably means you'll have to wear a jumper (7), but it'll save a lot of energy. Each degree Celsius less will save about 10% on your energy use. Also, reduce temperatures at night. Use thermostats on your heater or for your ducted system to control temperatures (8).
- Only heat the rooms you're actually using.
- Hot air rises to the ceiling, so you may end up with cold feet. If you have one, a ceiling fan at low speed may help circulate the hot air more evenly throughout the room, particularly if you have high ceilings (9). See also our test of ceiling fans in CHOICE, October 1998.
- Choose the cleanest available fuel and the right size of heater (see *Size matters* — how to calculate your heating needs, right, and the table on page 33).
- Check with your state energy information centre for more tips — for example, on energy-saving passive solar design when building a new house or renovating an existing one.

Illustration by Mike Gorman



SIZE MATTERS — HOW TO CALCULATE YOUR HEATING NEEDS

Our calculator allows you to estimate the heat loss of a room and the heating capacity you'll need to warm it:

- **Insulate** — then calculate. Prevent heat losses as much as you can before investing in a new heating system (see *Heating tips*, left).
- **Measure** the different elements of the room as required by the calculator and fill in their size in square metres (multiply length by height or width to calculate square metres). Then multiply the area by the heat loss factor given for each element. This will give you an estimate of the heat loss in watts through each element of the room.
- **Add up** all the heat losses of the room elements to get the total heat loss of your room.
- **Now add 50%** to cover the extra capacity needed to heat up a cold room and other factors such as draughts.
- **Divide the result by 1000** to get the heating capacity in kW needed to heat the room.
- **Portable and off-peak electric heaters** have almost 100% efficiency and air conditioners are rated according to their output energy. So the kW value you've calculated in

the last step is the capacity of the electric heater or air conditioner you'll need.

- **Gas heaters** are usually rated in MJ of *input* energy: one kW equals 3.6 MJ. However, gas heaters don't turn all the energy contained in the gas into heat — their efficiency is about 90% for unflued heaters and 75% for flued heaters. The heating calculator takes this into account.

■ You can also find this calculator on our website: www.choice.com.au/quizheatingcalc.asp.



Heat loss calculator

Room element

- Ceiling (to insulated roof or unheated room above)
- Ceiling (to uninsulated roof)
- External walls (insulated)
- External walls (uninsulated)
- Internal walls to heated rooms (including neighbouring dwellings)
- Internal walls to unheated rooms (including neighbouring dwellings)
- Windows with double glazing or full-length curtains
- Other windows
- Floor (slab on ground)
- Floor (above open space or unheated room)

Area

- _____ sq m x 20 = _____ W
- _____ sq m x 40 = _____ W
- _____ sq m x 10 = _____ W
- _____ sq m x 26 = _____ W
- _____ sq m x 0 = no losses
- _____ sq m x 16 = _____ W
- _____ sq m x 40 = _____ W
- _____ sq m x 80 = _____ W
- _____ sq m x 10 = _____ W
- _____ sq m x 20 = _____ W

Heat loss factor

Total heat loss = _____ W

add 50% = _____ W

Heating calculator

Required heating capacity of:

Electric heater: Divide the final figure you've arrived at by 1000 to get kW.

Unflued gas heater: Multiply the kW you've just calculated for an electric heater by 4 to get input MJ.

Flued gas heater: Multiply the kW for an electric heater by 4.8 to get input MJ.

Heater capacity

- = _____ kW*
- = _____ MJ*
- = _____ MJ*

Adopted from CSIRO's publication *Room heaters and coolers — choosing the best size*.

* This is the capacity needed to maintain a temperature difference of up to 12°C between indoors and outdoors. In extreme climates this may not be enough, and you may need a larger capacity.

The calculator can only be used to estimate a room heater's capacity, not for ducted systems.



From waste to resource

If all our organic kitchen and garden waste was composted, mulched or put in a worm farm, the amount of waste going to landfill could be reduced to a fraction.



IN BRIEF

■ With very few exceptions, if you want to stop your organic waste going to landfill, you'll need to compost or mulch it yourself. Australia has no collections and very few large-scale composting facilities for organic kitchen waste.

■ If you have even a small garden and follow a few basic principles (see *Four principles for good compost*, far right), composting doesn't have to be hard and is very good for feeding nutrients back into the soil. If you have nothing but a verandah and pot plants, try a worm farm.

DO YOU COMPOST YOUR KITCHEN and garden waste, or does it end up in the rubbish? If you think composting is too difficult, here are some figures to get you thinking again.

Organic material is the single largest component in Australia's garbage stream. It makes up over half of our household garbage, according to the first national recycling audit and garbage bin analysis conducted by the Beverage Industry Environment Council (BIEC). Other projects have found the organic component in municipal waste as high as 70%.

BIEC conducted the audit in 1997 in conjunction with 101 councils in capital cities, representing nearly 60% of the Australian population and providing a national picture.

According to the BIEC audit, more than half the organic waste we dispose of is food waste (including cooked or uncooked meat and vegetables, meal preparation and table scraps, and spoiled food); the remainder is green waste (grass and tree clippings, branches, leaves, soil and flowers).

If this organic waste was removed from the waste stream — and all potentially recyclable materials were recycled — the total amount going to landfill could be less than 15% of current levels.

However, the report points out that such a reduction would happen only if there was suitable infrastructure for collecting, processing and marketing recycled waste.

Green waste

While green waste makes up about 22% of the garbage disposed of, only a small amount (3%) is collected for recycling. Some local councils encourage residents to separate green waste for recycling, but not many: at the time of the BIEC audit, only 12 of the 101 participating councils provided collection services for it (in NSW, SA, Victoria and WA).

Organic kitchen waste

There's no known similar service for kitchen waste, according to environmental authorities. If you want to recycle kitchen waste into a nutrient-rich fertiliser, you have to compost it at home, or use a worm farm.

Overseas, such collections and large-scale composting facilities are commonplace. In Australia, however, authorities are just beginning to consider the options.

Large-scale processing

A waste processing plant that incorporates a composting facility (for household refuse and sewage sludge) is currently being built in Raymond Terrace, NSW, by the Bedminster Bioconversion Corporation. It will process all the domestic waste from Port Stephens.

WA has a locally developed waste processing system. The city of Stirling, WA, doesn't send any organic waste to landfill. Instead of simply being left to rot, the waste of this 186,000-population city has become a resource for agriculture. By converting organic waste into compost, the amount of waste going to landfill has been reduced by more than 70%.

The city's garbage is collected by the Atlas Group of Companies and transported to the waste processing plant, where it's mechanically sorted into organics for processing into compost, scrap metal for recy-

cling, and inert residuals, which are sent to landfill. The plant is also capable of producing methane for energy production.

The plant currently processes about 260 to 300 tonnes of household garbage generated in Stirling every day. Atlas uses the compost on its own broadacre farm and says samples it had tested met the criteria set out in the Australian standard for compost, soil conditioners and mulches.

There is some concern in the waste management industry about the quality of the compost from facilities that extract organic materials from mixed household garbage — for example, there may be heavy metal contamination. However, Viet Nysen, the Waste Services Development Officer for Stirling, points out that the main concentrations of heavy metals in the Australian waste stream are in sewage sludge, which isn't processed at the Atlas plant.

While it has worked in Stirling, other options may be more suitable for larger cities. Several projects and trials are currently in progress in various parts of the country to find appropriate solutions for different situations. But one thing is sure to help reduce the amount of waste going to landfill: backyard composting.

The value of home composting

Considering Australia's high home ownership rate, the reduction in waste going to landfill could be significant if everybody with a garden set up their own composting system. It's a very cost-effective way of turning organic waste into a natural fertiliser. And, as the composting is done where the waste is produced, it doesn't involve transport costs to a processing facility and associated pollution.

The end product — compost (or mulch, if you're just shredding garden waste) — benefits your garden in more ways than one. It'll insulate and improve the structure of the soil, help rainwater soak into the ground, keep moisture in the soil and so reduce water loss through evaporation, suppress weed growth and add organic material to the soil. Last but not least, compost will provide valuable nutrients for plants that can increase their growth, quality and yield.

For information on successful home composting and worm farming — and test results of various compost bins and tumblers — see our reports in the December 1994 issue of CHOICE. Check also with your local council — it may have information on the topic, hold seminars or sell compost bins or worm farms at subsidised prices.

For information about the disposal of green waste, contact your council or state environment department. You can find test results of lawnmowers that mulch as well as mow in the November 1997 issue of CHOICE, and of garden chippers/shredders in the January 1995 issue. □



Even if you don't have a garden, you can feed your organic waste to a worm farm and use the results on your pot plants.

Four principles for good compost

No matter how you treat the organic waste on a compost heap or in a composting bin or tumbler, it'll break down eventually, unless it dries out. But to gain a good, crumbly, soil-conditioning compost, stick to the following principles — and keep on trying if your first attempt doesn't produce the results you're hoping for. You'll get it right eventually.

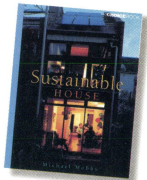
■ **Keep your compost moist.** Too little moisture will halt the decomposition process; too much, however, may slow the process and lead to fermentation and a foul smell. Ideally, the moisture content should be about 40% to 60% — about the consistency of a lightly wrung sponge.

■ **Keep your compost well aerated.** Composting is an aerobic process — it needs oxygen. To help aeration, turn, lift or fork through the composting matter regularly. (You can produce nutrient-rich compost in anaerobic conditions as well, but it'll take longer and the compost may be of a less pleasant consistency and smell. However, it may be the

way to go if you mainly want to dispose of kitchen waste and have too little dry (carbon-rich) material for aerobic composting).

■ **Feed the micro-organisms in your compost the right mixture of organic matter.** You have to add a variety of ingredients containing the right amounts of carbon and nitrogen. Carbon-rich materials include dry leaves, twiggly prunings, sawdust, paper, straw and dry grass, which are all fairly low in moisture. Materials high in moisture and nitrogen are vegetable scraps, green plant materials, fruit peelings, fresh lawn clippings, manure, garden weeds and seaweed. Although meat, fish and fat are suitable for composting, they're best left out because they may attract vermin, cats, dogs and insects.

■ **Keep all the waste materials small or shredded** to speed up the composting process.



The CHOICE Book *Sustainable House* has more information on composting as well as many other ways to make your lifestyle and home more environmentally sustainable. See the CHOICE Books catalogue you received with this issue.

Need a tradesperson?

An honest, reliable and competent one?

Unfortunately we can't put them all to the test, but following our steps and checklists may help you avoid some of the problems and pitfalls for your next household job.



Finding a good tradesperson

IN THIS ARTICLE

■ You'll find out how to hire a tradesperson — and increase your chances of getting a good one.

■ We provide useful steps and checklists for a variety of household improvements and repairs, and tell you when you need a licensed tradesperson for the job.

WHEN YOU'RE STANDING ANKLE-deep in water, desperately trying to stem the flow from a burst pipe with chewing gum and a hammer, you probably don't have much choice about which plumber you hire — you take the first one who'll deal with your emergency.

But for less urgent building, renovating and repair jobs it can pay to do your homework so you know exactly what you're up for. Shop around for a good tradesperson, and make sure everything runs as smoothly as possible.

The following is a step-by-step guide to the things to look out for — and keeping your sanity.

Before the job starts

1 Do your homework

✓ Decide exactly what you want done and how much you can afford to spend. It may help to write it down in detail (which will also help when you're getting quotes — see Step 3: *Get quotes and estimates*).

✓ Talk to neighbours and friends who've had similar work done — neighbours can be particularly helpful if their property is similar to yours. Ask who did the job, whether they were happy with it, what problems they encountered, whether they'd recommend the company or person and how much it cost.

✓ Get a feel for the construction and condition of your property. If you're having electrical work done, how old is the wiring? For building work, are there any problems or peculiarities to do with your property's soil or substrate? Your council should be able to tell you about the land.

✓ For bigger jobs, like building and renovations, it helps to understand what's involved by doing some



background reading. Find a basic guide that covers the job — CHOICE's *Building and Renovating on Time and on Budget* is a good place to start (see the CHOICE Books catalogue you received with this issue).

✓ Obtain information on your — and the tradesperson's — rights and responsibilities from the relevant state government departments or local authorities (see the table on pages 42–43 for which one to contact).

✓ If you don't already have them, get a copy of plans marked with water mains and drains on your property from the water authority.

✓ Some jobs, particularly building jobs, will require plans professionally drawn up before you ask for quotes, and you may also need council approval. Ring your local council to find out what's required.

2 Where to start looking

✓ Conventional wisdom says the best way to find a good tradesperson is through a personal recommendation from a friend or neighbour who's had similar work done recently (see *Ways of finding a tradesperson*, page 41). You could also try the Yellow Pages, your local paper or ask the relevant trade association for recommendations.

3 Get quotes and estimates

✓ Before you get quotes, write down in detail all aspects of the job to be quoted on. This will make clear to each contractor exactly what you want, and you'll be able to compare quotes equally.

✓ Understand the difference between a quote and an estimate.

A **quote** is a fixed price for the job, and if it takes more or less time and materials than originally allowed for, you still pay the quoted price.

An **estimated cost** is more elastic, and may be deceptively attractive, as contractors won't have to budget for the 'worst case'. This could work out in your favour, as firm quotes have potential cost blow-outs factored into the price that you'll pay for regardless. But if you do accept an estimate, keep a very close eye on the job and ask for a regular update on costs.

✓ Get at least three quotes (or estimates) for the job.

✓ Check to see if there's a charge for a quote before agreeing to go ahead with it (often quoting is free, but not always).

✓ Quotes should include a detailed list of the work to be done, based on your detailed request, with costs broken down into labour and materials, and proposed start and finish dates.

✓ If there are items you have to choose and/or buy yourself, like a stove or a vanity unit, keep in mind these costs probably haven't been allowed for in the builder's quote.

✓ Confirm with the builder what items you'll be supplying.

4 Choose the contractor

✓ Check that the contractor has the appropriate licence or registration to do the work (see the table for what's required in each state and under various circumstances).

✓ Find out how much experience they've had with the particular work you want done.

✓ Ask for references. Don't be satisfied with written references from previous clients — speak to them yourself, or better still, ask if you can see the work.

✓ When you're inspecting a contractor's previous work, you could also try to get an idea about whether they kept to cost and time, their punctuality, tidiness and so on. Their attitude to the quote might also give you some hints: were they on time? If not, did they warn you in advance? Were they keen? If you weren't given a quote on the spot, how long did it take them to get one to you?

✓ If you're borrowing money for the work, the lender should run a credit check on the builder/tradesperson (make sure you get its assurance in writing).



A PLUMB JOB

While disaster stories involving dodgy, slack or incompetent tradespeople make entertaining reading, they don't reflect the whole picture — there are lots of good ones out there.

When Birgitt and Rob needed some plumbing done, they asked their local real estate agent for a recommendation.

The plumber arrived at the arranged time, seemed to know what he was talking about, and gave them what seemed a very reasonable quote. They agreed to it, and he did a good job.

He then came back another day and did some additional work (related to the first plumbing job) they wanted done, spent over half an hour on the job, and charged only for the parts.

"He did a great job, it seemed very cheap and he was really considerate," says Birgitt. "For instance, he asked for a vacuum cleaner to clean up some wood shavings from drilling holes. And the second time he came it was raining, and he wiped his feet thoroughly on the doormat before coming inside."



FINDING A GOOD TRADESPERSON

On the job

5 The contract

You'll need a contract for work done in most states when it exceeds a certain value — for example, in NSW it's when the labour component exceeds \$200 (so almost always), while in the ACT, NT and Tasmania they're never required (see the table for the situation in your state). But even if you're not legally required to have a contract, you'd be better off getting one anyway — no matter how simple the job is, if something goes wrong, it gives you some legal standing.

✓ Write down in detail everything that needs to be done (based on the quote), and the price you've agreed on.

✓ The simplest contract, and one suitable for most small jobs, is for you to write on the quote that you're accepting it, then sign and date it and have the contractor do the same.

✓ For larger jobs you may want a more detailed contract. Industry associations often have standard contracts for members, but watch out for inbuilt biases towards the contractor. If you don't think a clause is fair, ask to have it deleted or changed. If you can't reach agreement, you may need to have a non-standard contract specially drawn up — or change contractors.

THE FINE PRINT



Everyone knows they should always read the fine print before signing a contract. But when there's a good half-hour's reading with a magnifying glass for what seems like a pretty straightforward job, you might be tempted to skip it: after all, what could possibly go wrong?

Ron and Louise commissioned a wardrobe company to install built-ins in an upstairs room in their two-storey terrace. In the course of the installation the contractor put a screw through an electric wire and cut the power to all the lights on the top storey.

When Ron called the company to complain, it refused to take responsibility for the problem — and pointed to a clause in the multitude of fine print on the back of the contract absolving it of any responsibility for damage to property.

It was only after many phone calls, and Ron threatening to sue the company if Louise — then eight months pregnant — fell down the stairs in the dark, that it finally agreed to further action. It sent an electrician out, on the proviso that he wasn't responsible for repairing any damage to the plaster when chasing the wires to find the problem.

As he was anxious to get the lights working as soon as possible, Ron reluctantly accepted. And as for the resultant damage — a gouge about 1.5 m high, 15 cm wide and 7 cm deep — he replastered it himself, rather than take any more chances with tradespeople.



Things to watch for:

✓ If you're asked for a **deposit**, don't agree to pay too much (around 10% for small jobs, 5% for jobs over \$20,000 is reasonable).

✓ If you're to make **progress payments**, contract to make them as work stages are completed, rather than on specified dates.

✓ If there are a lot of **provisional costs** (estimates of labour and materials the contractor can't price realistically), ask the reason for this and, if you accept them, keep an eye on them.

✓ If the contractor is supplying **items you've chosen yourself**, like wallpaper or a rangehood, check that the brand and model are correct and you're happy with the price. If you're buying them yourself, make sure this is clear.

✓ **Start and finish dates** should be clearly stated in the contract, as well as a clause covering valid reasons for altering the timing — make sure the dates and reasons are realistic.

✓ The contract should state who's responsible for arranging **insurance** to cover injury to the public and workers, and damage to property.

✓ Check the conditions that apply if you or the contractor wants to **terminate** the contract.

✓ Check whether contractors are liable for **incidental damage** they cause to your property — there may be a clause in the contract that exempts them (see *The fine print*, left, for what can go wrong).

✓ If you make **changes after the contract is signed**, do it in writing, make sure the price is stated and that the change is agreed to and signed by you and the contractor.

6 Monitor the job

✓ Keep an eye on progress and, if you're not happy about something, discuss it with the contractor sooner rather than later. Keep written records of the conversations — they could be useful for future dispute resolution proceedings.

(Continued on page 42)

Checklists

For each of the following jobs, follow steps 1 to 7 listed in this article, and add these more specific steps.

Building/renovating

- For a big job you'll need properly drawn-up plans and full technical specifications — you'll need an architect (see *Hiring an architect*, page 43) or architectural draftsman.
- You'll also need council approval. Either you or the contractor can make the application. If the contractor does, though, make sure they're on the case as it can get bogged down.
- List the work to be done in each part of the house, including foundations, exterior walls, roof and interior.
- Specify any special features or fixtures you want, materials you'd like (especially for finishing) and the type of hardware (bathroom fittings, door handles and so on).
- Note any work you'll be doing yourself.

Painting/decorating

- List all areas to be painted, including window frames, skirting boards and so on.
- Choose your colour scheme, and note which colours go where. You might want to try out some test pots to see if you're happy with the colour selection, especially if it's a big paint job.
- Discuss with the painter what sort of preparation is needed. The better the preparation, the better the finished job — and the more expensive. Also find out how many coats will be needed (including primer and undercoat).
- Discuss the kind of paint you want — gloss vs satin vs matt, and oil vs acrylic — and even the brand if you have a preference. The painter should be able to advise you on what's most suitable for the job.

Plumbing

- All plumbing must be done by licensed or registered plumbers (or supervised by them, in the case of trainees). Make sure the contractor has the appropriate licence.
- Make a list of all the work that has to be done inside and outside (including garden taps, flashings, downpipes, drains, sewerage and so on).
- For big jobs you may need council approval — ring and find out.
- Choose the fittings you want and list them precisely.
- Make sure you know whether the plumber has included fittings in the quote, or if you have to select and pay for them separately.

Electrical work

- All electrical work involving mains power must be done by licensed or registered electricians (or supervised by them, in the case of trainees).
- Draw a rough plan of each room showing where you

want power points and light switches, how high from the floor, whether they're double or single, and other features like dimmers.

- Select the fittings and switches.
- Tell the electrician what appliances you'll be using, so the appropriate materials and circuitry will be installed.

Electrical appliance repairs

- If you need an electrical appliance repaired, look for service companies under the appliance name in the Yellow Pages.
- In most cases, appliance repairers don't have to be licensed tradespeople, although they might be qualified electricians or refrigeration mechanics. One exception is in Queensland, where air conditioner servicing must be done by licensed refrigeration mechanics.
- Many appliance repairers belong to industry associations, such as the Appliance Industry Association (for whitegoods) and the Electronic Services Industry Association (for TVs, VCRs, microwaves, computers and stereos).

Ring a relevant industry association is a good place to start looking for a repairer, because they usually offer some guarantee of good service: they screen applicants for membership, and members agree to abide by a code of ethics. If something goes wrong, the association may act on your behalf. They'll give you contact details for your area. (Look at ads in the Yellow Pages, under the name or category of the appliance you want repaired, for the names of relevant industry associations.)

Ways of finding a tradesperson

Our sister magazine in the UK, *Which?*, surveyed its readers about how they found tradespeople and how satisfied they were with the person and the job.

Of those who'd had a tradesperson recommended by a friend, 76% were very satisfied, a lot more than those who chose one from an ad in the local paper (62%), phone directory (60%), or on the recommendation of an insurance company (52%).



FINDING A GOOD TRADESPERSON

TYPE OF JOB	Renovations*		Floor and wall tiling	Damp proofing / cure existing damp	Structural landscaping: fences, retaining walls	Roof mended or replaced	Painting and wallpapering
CONTRACTOR	Builder	Bricklayer, plasterer, carpenter	Tiler	Damp repairer	Landscaper	Roof tilers, slaters, shinglers	Painter / decorator
ACT	Must be licensed by BEPCON (B) (except for some minor work). No requirement for a written contract, but it's recommended.	No licence or registration required. No contract required, but it's recommended.					
NSW	Must be licensed by the Department of Fair Trading. A contract is required if the labour exceeds \$200. Insurance is mandatory if the job is over \$5000.						
NT	Licensing is available, but not required. A contract is recommended but not required.						
Queensland (A)	Must be licensed by the Building Services Authority (BSA) for work over \$500; written contract required if over \$3000.						
SA	Must be licensed by the Office of Consumer and Business Affairs regardless of value. Contracts are not required for work under \$5000, but are strongly recommended. The builder must take out indemnity insurance for work over \$5000.						
Tasmania	No licence, registration or contract required.						
Victoria	Must be registered with the Building Practitioners Board. Contract required only for work over \$5000.	If these sorts of jobs are done in isolation (ie not subcontracted by a builder) tradespeople don't have to be registered. However carpenters must be registered with the Building Practitioners Board and insured for jobs over \$5000.					
WA	Must be registered with Builders Registration Board for work over \$12,000 (except certain areas). Contract required if over \$6000.	Registration not required for small jobs, but if the value of work is over \$12,000, check with the Ministry of Fair Trading, as it may constitute building work.					Must be registered with the Painters' Registration Board if work is valued at more than \$200 (except in certain areas of WA).

When it's finished

7 Inspect the finished work

✓ Go over the job once by yourself and again with the contractor. Point out anything you're unhappy with and agree on a timetable for rectification and completion.

8 Resolving disputes

If you're unhappy with the work done:

- ✓ First try and sort it out with the contractor.
- ✓ If that fails, you could try mediation — contact the relevant licensing or registration authority in your state for more on your options (see the table, above).
- ✓ Another option is arbitration, and some contracts state that complaints will be dealt with by an arbitrator from the contractor's trade association. However, independent mediators have a better reputation for impartiality, and we'd advise you to change or delete any arbitration clause in the contract before signing.
- ✓ For large jobs, such as building, the contractor is required to take out indemnity insurance (except in

the NT). In the ACT, NSW, Queensland, Tasmania and Victoria you may be able to claim on it for unfinished or defective work. In SA and WA you can only claim if the builder dies, disappears or becomes insolvent.

✓ All states and territories have small claims procedures, ideal for small jobs that may not be covered by the contractor's indemnity insurance. Contact your state's fair trading or consumer affairs department for more on this.

✓ A last resort is the courts, but high costs make it uneconomical for smaller disputes. Get specialist legal advice before going this way. See *Broken Home*, CHOICE, April 1998 for more on building disputes.



For all types of job — big and small — and all those contingencies, *Building & Renovating On Time & On Budget* can save you time and money. See the CHOICE Books catalogue you received with this issue for details.



pest control: termites, cockroaches	Plumbing: installing fixtures, fixing washers	Plumbing: clearing blocked drains	Gas pipes and appliances repaired or installed	Electrical work: rewiring, installing power points
pest controller	Plumber	Plumber / drainer	Plumber / gasfitter	Electrician
	Must be licensed by BEPCON (B).			
Must be licensed by WorkCover.	Must be licensed by the Department of Fair Trading.			
	Must be licensed by Plumbers & Drainers Licensing Board.		Must be licensed by Work Health Authority.	Must be licensed by the Electrical Workers Contractors Licensing Board.
Must be licensed by the Department of Health. Termite controllers must be licensed by the BSA for work in conjunction with building work.	Must be licensed by the BSA. A contract is required for domestic work over \$3000.			Must be licensed by the Electrical Workers and Contractors Board (D). A contract is required for domestic work over \$3000.
	Must be licensed by the Office of Consumer and Business Affairs, and provide a signed Certificate of Compliance.			
Must have a permit from the Department of Primary Industry and Fisheries (Registrar of Chemical Products).	Must be licensed by the Plumbers and Gasfitters Registration Board.			Must be licensed by the Electrical Licensing Board.
Consent not required, but must comply with local council regulations.	Must be licensed by the Plumbers and Gasfitters Registration Board.			Must be licensed by the Office of the Chief Electrical Inspector.
Must be licensed by the Public Health Department.	Must be registered with the Water Corporation (except Bunbury, Busselton and Kalgoorlie, where the licensing body is the local water authority). New work should have a certificate of completion and compliance from the plumber. (C).		Must be registered with the Office of Energy.	

* For big building jobs, see *Broken home*, CHOICE, April 1998.

(A) There will be changes to building legislation in July 1999 that may affect some of these requirements.

(B) BEPCON = Building, Electrical & Plumbing Control, ACT.

(C) New legislation is likely later this year. Check with the Office of Water Regulation.

(D) Trading as the Electrical Licensing Board.

Hiring an architect

Even though architects aren't considered 'tradespeople', you may want their services for home building and renovating jobs.

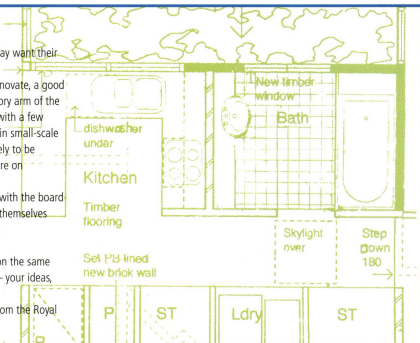
■ Once you have a good idea of what you want to build or renovate, a good place to start looking for an architect is **Archicentre**, an advisory arm of the Royal Australian Institute of Architects. It will put you in touch with a few architects in your area. Most practices are small and specialise in small-scale residential work. And if you choose a local architect, they're likely to be familiar with council regulations and procedures. Call Archicentre on (02) 9555 5111, or 1800 422 004 outside Sydney.

■ Before taking on an architect, make sure they're registered with the board of architects (contact the board in your state). People who call themselves architectural consultants, for instance, may not be architects.

■ Inspect examples of the architect's recent work.

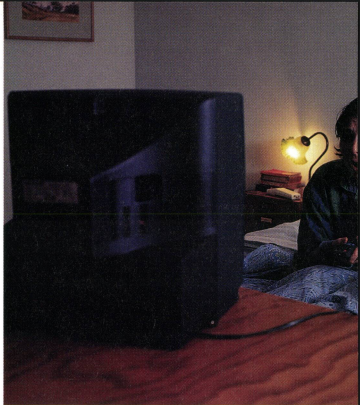
■ Take the architect's personality into consideration: are you on the same wavelength? It's important they listen to — and understand — your ideas, and don't simply impose their own on you.

■ If you decide to proceed, get a client-architect agreement from the Royal Australian Institute of Architects — it protects both parties.



Portable televisions

Want to scare yourself with midnight horror movies? A 34 cm TV is ideal for your bedroom.



IN BRIEF

■ The viewing panel gave good marks for picture quality to all but two of the models, but most were let down by poorer sound quality or factors that made them irritating to use.

CHOOSING A PORTABLE TV FROM A bank of look-alike squares in a display isn't easy. You can get a rough idea which picture you like best, but in a crowded showroom it's almost impossible to compare sound quality. And it may not be until you get home that you discover your latest acquisition is hell to tune, while calling up a double-digit channel number involves an annoying sequence of buttons.

To make your job easier, we compared 11 non-stereo 34 cm TVs, choosing the least expensive model available from well known brands.

Finding the ideal small TV

These TVs are a handy size to carry from, say, bedroom to kitchen and they're relatively cheap, so they're often bought as a second set. You therefore want them to be easy to move around. We checked all the tested models and found some much easier to carry than others — see *Moving them around* on page 47 for details. If you can, check this out for yourself when you're buying.

All but two of the TVs scored well for picture quality, with the SHARP, NEC, TEAC and LG sharing 75% and five others achieving 70% (see the table, page

WHAT TO LOOK FOR

The Sharp (bottom) and the Samsung had the easiest remote controls to use, while the Teac (top) scored poorly.



■ **Picture quality:** If the picture is too bright or dull or the colours don't look right, adjust the picture until you get it how you want it — or find you can't (a salesperson can help you with this). If any controls need to be set to maximum to get a good picture, be wary — you may not be able to compensate for deterioration in the tube as the TV set ages.

It's worth watching the TVs you're comparing for a while in the shop. A live news program or chat show is useful for checking that skin colour looks reasonably natural. You can

also look at hair to see how well fine details are reproduced. Check all areas of the screen, particularly the corners, to see if the image distorts or the colours smear.

■ **Sound:** Turn up the volume to see how high it goes before distorting, and look at the position of the speakers. The SAMSUNG and TEAC we tested had the speaker facing out to the side, so sound could become muffled if the set was put in a cabinet.

■ **Ease of use:** Try the controls, especially the remote, to make sure it's comfortable to hold and the most commonly used buttons are conveniently placed. The volume and channel-changing buttons should stand out so you can find them easily. Ask to see the instruction manual to check that it's easy to understand. And with some models you have to manipulate symbol keys as well as number keys to select a double-digit channel, which can be annoying.

Once you're happy with the picture, sound and ease of use, you might want to look for the features below.

■ **Manual tuning:** The TV scans the spectrum until it comes to a clear signal, which you can reject or assign a channel number to. All the TVs in the test do this.

■ **Automatic tuning:** The TV automatically scans the spectrum and tunes the channels to receive signals. It assigns the channel numbers, so, for example, Channel 7 may not be button 7.

■ **Manual fine tuning:** The frequencies stored by automatic or manual tuning might not give the clearest picture or sound. Manual fine tuning allows you to make tiny adjustments to the

47, for details). Many panellists commented on the clarity and good colour of the top-scoring models. There were two low scorers on 55%: the SONY was generally described as too blue or dark and the SAMSUNG as "murky".

The onscreen displays, important for tuning and other functions, varied: the LG and PHILIPS, with adequately sized words instead of small symbols, scored well. The SONY lost marks because you have to scroll through various options to select a function. Then it's displayed only briefly and may disappear before you've had a chance to carry out the next step.

The TEAC was very disappointing for ease of use, scoring a surprisingly low 44%. Its front control panel buttons are too small and concealed behind a cover, its remote is small and awkward

to use (see below left), and its manual is hard to understand. Its 50% score for sound quality was also the lowest in the test. But it's the only TV in the test with a swivel base, which some people would find useful.

WHAT TO BUY

SHARP CX-34G3	\$ 359
LG CA-14F80	\$ 329
PANASONIC TC-14S15A	\$ 399

tuning to get the best setting possible.

■ **Channel skip:** Allows you to bypass channels when using the channel-up and channel-down buttons. So if the ABC is tuned to 2 and Channel 7 to 7, you can program the remote to skip directly from 2 to 7, without going through the untuned channels 3, 4, 5 and 6.

■ **Channel renumber:** Enables you to change the channel numbers of already tuned channels without retuning.

■ **User picture setting memory:** Allows you to program a group (or groups) of settings for the picture controls (colour, brightness, etc) for later recall.

■ **Previous channel:** At the touch of a button the TV returns to the previous channel, so you can easily toggle between two channels.

■ **Channel recall:** Gives onscreen display of the current channel number, so you can check which you're watching. Only the LG doesn't have this feature.

■ **Child lock:** The GE, LG and PANASONIC have a child lock: when the TV is in child lock mode it can only be controlled by the remote.

The models in the *What to buy* list are profiled in rank order from top to bottom. Prices shown are a good target to aim for when shopping around, based on nationwide checks in January 1999. Anything lower is a bargain.

SHARP CX-34G3

Target price: \$359

Good points

- Best overall.
- Equal easiest to use.
- Equal best picture.
- Sound quality is equal second-best.
- Off, on and reminder timers (turn the TV on or off at a set time, provide a reminder after a set time).

Bad points

- No channel renumber function, so you can't change a channel number without retuning it.
- No headphone socket, which is a disadvantage for people with a hearing difficulty.



Sharp CX-34G3

LG CA-14F80

Target price: \$329

Good points

- Second-best overall.
- Equal best picture.
- Sound quality is equal second-best.
- Easy to use.
- Automatic volume leveller (the volume stays constant even when you change to a softer or louder channel).
- Child lock.
- Off and on timers.

Bad points

- Instructions are confusing: they cover functions this model doesn't have.
- No channel recall function, so you can't easily check which channel you're watching.
- Slightly difficult to carry.



LG CA-14F80

PANASONIC TC-14S15A

Target price: \$399

Good points

- Equal best sound quality.
- Equal second-best picture.
- Easy to use.
- Tone control.
- Child lock.
- Off timer.
- Easy to carry.

Bad points

- No channel renumber function.
- No 'previous channel' function, so you can't toggle between two channels using just one button.



Panasonic TC-14S15A

What about the rest?

- The TEAC and NEC came equal best for picture quality, but fell down elsewhere. The NEC was brought down to fourth place by its comparatively low ease of use and sound quality scores, while the TEAC dropped to ninth place, with a very low 44% for ease of use and only 50% for sound quality.
- The PHILIPS, GE, SANYO and AKAI all had good picture quality, but were let down either by their sound or ease of use scores.
- The SAMSUNG and SONY were pushed to the bottom of the table by their comparatively poor picture quality.

Brand / model (in rank order)	Manufacturer / distributor	Origin	Target price (\$)*	Warranty (years)	Dimensions (w x h x d; mm)**	Automatic tuning	Manual fine tuning	Channel skip	Channel number	User picture setting memories
SHARP CX-34G3	Sharp	Malaysia	359	1	360 x 360 x 360	✓	✓	✓		
LG CA-14F80	LG Electronics	Thailand	329	1	385 x 355 x 385	✓ (B)	✓	✓	✓	1
PANASONIC TC-14S15A	Panasonic	Malaysia	399	1	390 x 355 x 380	✓	✓	✓		3 (E)
NEC N-3456	NEC	Thailand	349	1	370 x 340 x 365	✓	✓ (C)	✓		
PHILIPS 14PT1422	Philips	Singapore	440	1	365 x 365 x 385	✓ (B)	✓	✓	✓	(F) (G)
GE 14GMBXA	Thomson	Thailand	298	1	365 x 335 x 385	✓	✓	✓ (D)	✓ (D)	1
SANYO C14PL81	Sanyo	Indonesia	369	1	385 x 360 x 395	✓	✓	✓	✓	1 (G)
AKAI CT-1419A	Akai	Malaysia	329	1	365 x 340 x 380	✓	✓	✓	✓	
TEAC CT-M341MKII	Teac	China	299	1	370 x 340 x 375		✓			1 (G)
SAMSUNG TV-346 (A)	Samsung	Thailand	329	1	360 x 345 x 380	✓	✓	✓	✓	1
SONY KV-G1452	Sony	Malaysia	469	2	380 x 350 x 415	✓ (B)		✓		

How reliable have subscribers found them?

We asked a group of our subscribers if they'd had any problems with their TVs over the previous 12 months and whether they'd buy the same brand again.

About one in eight TVs had needed repair, at an average cost of \$120. The most common problem was with the TV's picture.

The graphs on the right show the results for those brands for which we received enough responses. The number in brackets tells you how many readers reported on the brand. Note that the results are for all TVs, not just portables. They don't cover all brands on the market and they do include brands we didn't test this time.

Percentage not needing repair

Panasonic/National (719)	93
Sharp (290)	93
Sony (453)	93
JVC (66)	92
Mitsubishi (154)	91
Toshiba (140)	91
Hitachi (61)	90
Rank Arena (124)	90
NEC (297)	89
Fujitsu General/General (55)	87
Sanyo (255)	87
Akai (216)	82
Samsung (118)	82
Philips (527)	78
Teac (118)	77

Percentage who would buy the same brand again

Sony (477)	98
JVC (70)	97
Panasonic/National (747)	97
Sharp (295)	93
Mitsubishi (164)	92
NEC (309)	91
Sanyo (260)	91
Philips (543)	90
Toshiba (146)	90
Hitachi (64)	88
Rank Arena (127)	87
Samsung (127)	87
Fujitsu General/General (58)	83
Akai (226)	81
Teac (121)	75

Standby — why not to use it

Many people routinely leave their television in standby mode to avoid having to switch on at the set. But this is a slightly risky thing to do: because the power supply to the TV is still on, there's a risk that the TV could overheat and cause a fire.

There's currently a coronial inquiry in Tasmania into two deaths by fire last year, thought to have been caused by a TV. In NSW alone, 59 fires started in TVs during the year 1996–97. It's not usually possible to tell after a fire whether the TV was on standby or not, but it's likely to have been on standby or switched on. To reduce the risk, turn your TV off at the set; to be safe, switch it off at the wall socket or pull out the plug.

It also costs you money to leave your set on standby. Assuming that the TVs we tested were left on standby for 19 hours a day, we estimated it would cost between \$2 and \$11 a year — not a huge amount, but it will mount up over the years. (See the table for the estimated standby cost for each TV.) As well as adding to your electricity bill, using more electricity means more carbon dioxide is released into the air.

For people with a disability

An occupational therapist from the Independent Living Centre offered the following suggestions for choosing a TV for people with a disability.

- The remote control should be easy to grip, comfortable to hold and easy to operate with the thumb.
- Control buttons should be large, well spaced and clearly labelled in a contrasting colour, with symbols that are easy to read and understand.
- Onscreen displays should be large, clear and easy to understand.
- The TV should be light and easy to carry, with large carrying recesses.
- Teletext subtitles are available for some programs, so the **PHILIPS**, the only model tested which comes with this feature, could be a good choice for people with a hearing impairment (the **AKAI** tested has a companion model with teletext — see *Similar models*, right). The Australian Caption Centre on (02) 9212 5277 (voice) or (02) 9212 3129 (TTY) has listings of programs carrying captions. Alternatively, hearing devices can be plugged into the headphone socket (so check the TV has this feature).

1	2	3	4	5	6	7	8	9	
Previous channel	Enters double-digit channels easily	AV inputs	Portability	Standby cost per year (\$)	Picture score (%)	Sound score (%)	Ease of use score (%)	Overall score (%)	Brand / model (in rank order)
✓		Front, rear	Good	6	75	60	80	73	SHARP CX-34G3
✓	✓	Front, rear	OK	8	75	60	75	72	LG CA-14F80
✓		Front, rear	Good	4	70	65	75	70	PANASONIC TC-14S15A
✓		Front, rear	Good	11	75	55	59	68	NEC N-3456
✓	✓	Front, rear	Good	8	70	55	77	68	PHILIPS 14PT1422
✓		Front, rear	Borderline	2	70	60	65	67	GE 14GM8XA
✓		Front, rear	OK	4	70	65	61	67	SANYO C14PL81
✓		Front, rear	Good	7	70	60	61	66	AKAI CT-1419A
✓		Rear	Borderline	8	75	50	44	64	TEAC CT-M341MKII
✓		Front, rear	OK	7	55	60	80	61	SAMSUNG TV-346 (A)
✓		Front, rear	Good	8	55	65	72	60	SONY KV-G14S2

* Prices shown are a good target to aim for when shopping around, based on nationwide checks in January 1999.

** Rounded up to the next 5 mm.

(A) This model was discontinued earlier this year, but you might still find it in shops.

(B) Allows you to specify the channel to start tuning from.

(C) The NEC has what it calls manual fine tuning, but it's not as finely adjustable as the

other models.

(D) Available only after automatic tuning.

(E) The settings can be individually reset to factory settings in case you make mistakes.

(F) You can have a different setting for each channel from 0 to 11 and AV, and a

common setting for channels 12 to 79.

(G) Includes volume-setting memory.

Similar models

The **AKAI CT-1419AT** has teletext; the **NEC N-3457** is only cosmetically different; the **PANASONIC TC-14L10A3** speaker is in a different position.

1 Features

The same features are often given different names by the different manufacturers. For example, the **TEAC** has a button marked auto-tuning, but it starts what we refer to as manual tuning. See *What to look for*, page 44, for explanations of the features listed here.

2 Enters a double-digit channel number easily

A tick indicates that a double-digit channel can be selected simply by pressing the relevant number keys. No tick means you have to hold a number key down, awaiting an indicator, or use the *-/* key.

3 AV Inputs

An AV input at the front as well as the rear of the TV makes it easier to plug in a camcorder.

4 Portability

See *Moving them around*, right.

5 Standby energy cost per year

Estimates assume that the TV is left on standby for 19 hours a day, costing 12 cents per kWh for electricity. See *Standby — why not to use it*, for more on this.

6 Picture quality score

The picture quality was scored by a panel of viewers who carefully studied and rated the images produced by the TVs in our test. Brand names were

hidden and, to eliminate distractions, the sound was switched off. We also ran some standard technical tests on the pictures to be sure none of the models was faulty, but didn't include this in our scoring.

Sound score

7 This score combined four technical tests, each of which was given equal weighting:

- Low-frequency cut-off.
- High-frequency cut-off.
- Smoothness within the frequency band.
- Ability to produce a reasonably high volume (80 dB) when still some way from their maximum setting. This gives an indication of how wide the volume range is.

Moving them around

All the TVs we tested are marketed as portable, but that doesn't mean they're all easy to carry. They weigh in at between 9 kg and 12 kg and are fairly uniform in size (with only one — the **SONY** — having any dimension bigger than 40 cm), so most aren't too unwieldy.

All TVs are heavier in front because of the weight of the thick glass picture tube, but how awkward this makes them to carry varies from model to model. All the models tested, except the **TEAC**, have two carrying recesses you can slide your hands into at the top of the cabinet area, at the back.

The **PANASONIC** is the most comfortable to carry, while the **SANYO** is unbalanced. The **LG**'s recesses aren't really large enough to get your hands into properly (you end up carrying it by your fingertips) and the **GE**'s are so small that it was easier to ignore them and carry the TV by putting your hands underneath it.

All the TVs come with a telescopic antenna, which can be mounted on top of the TV when it's not near an external antenna outlet.

8 Ease of use score

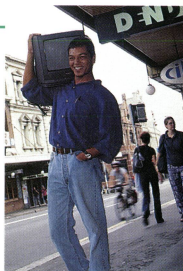
This was a combination of:

- Remote control (40%).
- Front panel controls (20%).
- Instruction manual (15%).
- Onscreen display (15%).
- Tuning tasks (10%).

9 Overall score

This was a combination of:

- Picture quality (60%).
- Sound quality (20%).
- Ease of use (20%).



Sometimes it's just easier to ignore the carrying handles ...

● RECALLS & BANS

If you find a recall or ban not on our list, please let us know. Companies often rent 1800 numbers for a couple of months after the recall is announced. If the number given is no longer operating, phone the manufacturer or retailer direct.

THE PRODUCT: Ford has recalled the **Ford Explorer Limited**, manufactured during 1997 and 1998.

The problem: Some vehicles' factory-fitted floor mats may creep forwards and interfere with the accelerator pedal.

What to do: Contact your Ford dealer — if your mats are affected, new ones will be fitted.

THE PRODUCT: Suzuki has recalled two 1998 motorcycle models: the **GSX-R750W** and the **TL1000RW**.

The problem: The hose delivering fuel from the pressure pump to the filter may disengage due to a production problem. If this happens, the engine won't run.

What to do: Contact your Suzuki dealer to arrange a free hose upgrade.

THE PRODUCT: R J Wood has recalled batch 98002 of the **Safety First Back Float** (item numbers 6078 and 002252) — an orange foam bubble float, which is attached to the child using a chest strap — sold in NSW in December 1998 and January 1999.

The problem: The chest strap's fastening clip can pull apart easily, leaving the child at risk of drowning.

What to do: Don't use the float. Return it to the retailer for a refund or call R J Wood on 1800 045 981.

THE PRODUCT: Liquorland has recalled all **700 mL bottles of Hankey Bannister Scotch Whisky**, sold through Liquorland, Vintage Cellars, Quaffers Liquor Markets, Farmer Bros stores, Local Hero hotels and Inter-Liquor gift service since October 1, 1998.

The problem: Glass has been found in some bottles.

What to do: Return it to the retailer for a refund or contact Liquorland on 1800 001 452.

THE PRODUCT: Coles Myer has recalled **Savings Value Bag Choc Sultanas**, 400 g, bought from Coles or Bi-Lo in Victoria, with a best-before date of August 4, 1999.

The problem: Bags containing chocolate-covered peanuts instead of

chocolate-covered sultanas have been found. This could pose a risk to people allergic to peanuts.

What to do: Return bags to your retailer for a full refund. For further information contact Coles Myer on 1800 061 562.

THE PRODUCT: Companion has recalled all **Companion Wanderer Compwand** single-burner portable barbecues.

The problem: There may be a defective thread where the gas cock screws into the burner. This is a fire risk as the gas cock could fall out during operation.

What to do: Don't use the barbecue. Contact Companion on (02) 9704 4297 (8.30 am to 4.30 pm EST, Monday to Friday) or fax (02) 9704 4299 for further information and a free repair kit.

THE PRODUCT: Velox has recalled the **4.50E x 9" cast alloy boat trailer wheels**. The wheels could be on any boat trailer with Velox wheels bought in NSW between October 6 and December 21, 1998.

The problem: Due to a machining defect, the wheels may fail if overloaded.

What to do: Don't use the trailer. Contact Velox on (02) 9542 1700 to arrange for replacements as necessary.

THE PRODUCT: Earth-Cycle Australia has recalled **Kore Torison Bicycle Handlebars**. The handlebars are standard on 1998 Barracuda, Mongoose and Haro mountain bikes and are also sold as an upgrade for other bikes.

The problem: The right-hand side of the upper bar may break off at the weld joint to the lower bar.

What to do: Don't ride the bike. Return the handlebar to the place of purchase for a replacement; for further information contact Earth-Cycle Australia on (08) 9325 5377.

THE PRODUCT: Sinia has recalled **toy counting frames** distributed in Victoria and SA between December 1996 and December 1997. On the left of the small wooden frames is a clock face (which has movable hands), with a painted kitten, professor or smiling man below it. On the right is an abacus. There is no brand name or identification on the frame; the model number, SWM 604, is on the box.

The problem: The abacus rods could break, releasing the counting beads, which are a potential choking hazard.

What to do: Don't allow children under three to play with the frame; return it to the retailer for a refund or contact Sinia on (03) 9585 2270.

THE PRODUCT: Guardian Family Care Chemists have recalled all batches of **Guardian Opta-Care Normal Saline**, 500 mL, AUSTL 22879, and **Guardian Normal Saline Solution**, 500 mL, AUSTL 22879, for contact lens care.

The problem: The saline solution may become contaminated with microbes during use, possibly causing eye irritation or infection.

What to do: Don't use the saline solution; return it to your retailer for a refund.

THE PRODUCT: Australian Motorcycle Importers has recalled the **Moto Guzzi 1100KE Sport** motorcycle (carburettor model).

The problem: The rear sub frame may fracture under stress and the seat may be locked on incorrectly.

What to do: Don't ride the bike. Contact your Moto Guzzi dealer for free replacement or reinforcement of the frame and replacement of the seat.

THE PRODUCT: Australian Motorcycle Importers has recalled the following **Moto Guzzi** motorcycles: **V10 Centauro**, **V10 Centauro GT**, **Daytona RS**, **V10 Centauro Sport**.

The problem: Some hoses (radiator oil delivery and return hoses, and cylinder head oil delivery hoses) may come loose at their connections, allowing oil to weep.

What to do: Don't ride the bike. Contact your Moto Guzzi dealer for free replacement of hoses.

THE PRODUCT: Naelfran has recalled **Bebes Nappies Large 16s**, batch 296.07, sold through Kmart, Coles or Woolworths/Safeway stores since November 1998. The batch number is printed in small black letters on the waistband.

The problem: A small, segmented cutting blade was discovered in a nappy.

What to do: Return nappies to the retailer for a refund.

THE PRODUCT: Rover Australia has recalled **Freelander** vehicles built in 1998 with a VIN between WA600000 and WA622408. The VIN is displayed on the engine bay bulkhead and also on the vehicle identification plate, which is on the passenger's side of the dash fascia.

The problem: The welding around the rear suspension links could fracture, resulting in an unsafe rear wheel.

What to do: Contact the Rover Australia Customer Response Centre on 1800 625 642, Monday to Friday, 8.30 am to 5.30 pm EST, to arrange for a free vehicle check and modification.

THE PRODUCT: Peugeot has recalled the **Peugeot 306 MY 98**, manufactured between December 1997 and June 1998. The date of manufacture can be found at the front of the vehicle under the bonnet or inside the boot, near the attachment point for child restraints.

The problem: A loose lower ball joint swivel pin may lead to possible ball joint failure and ultimately sideways movement of the wheel.

What to do: Contact your nearest Peugeot dealer and quote campaign XKW. Peugeot will check and (if necessary) modify the vehicle at its expense. For further information phone Peugeot on (02) 9828 9110, Monday to Friday, 9 am to 5 pm EST.

THE PRODUCT: Peugeot has recalled the **Peugeot 406 SV MY98**, manufactured between September 1997 and May 1998. The date of manufacture can be found at the front of the vehicle under the bonnet.

The problem: Deformed wheel rims could cause the tyres to deflate.

What to do: Contact your nearest Peugeot dealer and quote campaign XKR. Peugeot will check and (if necessary) modify the vehicle at its expense. For further information phone Peugeot on (02) 9828 9110, Monday to Friday, 9 am to 5 pm EST.

THE PRODUCT: ACS Computer has recalled the **Compro ACS100 Multimedia speaker system**, purchased between August 1997 and January 1998. The speakers have no date of manufacture sticker, which is normally on the back.

The problem: The mains connector may have an earthing fault, which creates a safety hazard.

What to do: Don't use the system and disconnect it from the power supply immediately. For replacement connectors, return to place of purchase or contact ACS direct on (03) 9335 4100, Monday to Friday, 9 am to 5.30 pm EST.

THE PRODUCT: Hannan International has recalled the **Baby Björn Baby Carrier**.

The problem: The carrier, recommended in a CHOICE test report in June 1998, has a leg opening that is large enough to allow a small child (weighing up to 4.5 kg) to fall through it.

What to do: Contact your retailer for a modifying girdle to make the carrier safe for smaller babies. Or call Hannan International on (03) 9645 0222 for further information.

Australian Consumers' Association 57 Carrington Road, Marrickville NSW 2204 **Phone** Subscriptions: (02) 9577 3399 General: (02) 9577 3333 **Fax** (02) 9577 3355

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We are completely independent. We buy all the products we test at random in the marketplace; we never accept products to be tested as gifts or loans from manufacturers or retailers. We are not beholden to any commercial, government or union interests, and we don't accept advertising, paid or unpaid. Our income is derived from the sale of CHOICE and our other publications and products.

We test and rate products and services. Our ratings are usually based on quality without regard to price, and are derived from lab tests, expert judgments and reader surveys. If a product is high in quality and relatively low in price, we deem it a **Best Buy**. A rating applies only to the brand and model tested, not to other models sold under the same brand name, unless so noted. We can't conduct special tests or provide information about tested products beyond what appears in CHOICE. Financial information in CHOICE is of a general nature, and is not intended to be advice on individual investments which should or should not be made.

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Manager: Raja Rajagopal. **Contact:** Jeanette Dwyer on (02) 9577 3333.

Twelve-month

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May 1998 — April 1999

How to use this index

Bold type indicates a test, survey or trial report, normal type indicates other articles.
***** indicates an update of a previous report, additions or corrections to reports, small follow-up items or letters.

For space reasons, the index generally doesn't include Choice Cuts, many other small pieces, and Recalls and Bans.

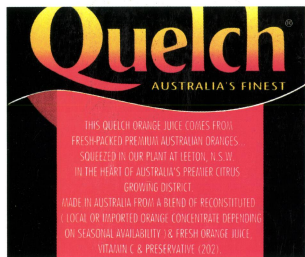
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theHARD word



Quelch
AUSTRALIA'S FINEST

THIS QUELCH ORANGE JUICE COMES FROM FRESH-PACKED PREMIUM AUSTRALIAN ORANGES, SQUEEZED IN OUR PLANT AT LEETON, N.S.W. IN THE HEART OF AUSTRALIA'S PREMIER CITRUS GROWING DISTRICT.

MADE IN AUSTRALIA FROM A BLEND OF RECONSTITUTED LOCAL OR IMPORTED ORANGE CONCENTRATE DEPENDING ON SEASONAL AVAILABILITY & FRESH ORANGE JUICE VITAMIN C & PRESERVATIVE (202).

Whose finest?

"Australia's finest", eh? Let's see ... "premium Australian oranges", "squeezed in our plant at Leeton, NSW," ... so far so good.

But hang on: what's this? "... local or imported orange concentrate". Sigh.

How about a little help?

The *hard word* would like to thank all the readers who have responded with examples of outrageous ads, promotions and products. Thanks to J Czibula, S Huckleby, G Jenner, J Saunders, S Sawyer, H Schotte and K Simpson for their contributions to this month's *The hard word*. Please keep sending them in.

If you have any examples that you think deserve to be on this page, send them to *The hard word*, CHOICE, 57 Carrington Road, Marrickville 2204, or email your suggestions to thehardword@choice.com.au.



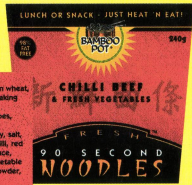
Sounds fishy...

The Stereo Laundry Disc promises you "high fidelity washing" — presumably your clothes look and sound better. And we thought we'd heard everything.

Where's the beef?

INGREDIENTS

NOODLES: high protein Australian wheat, water, vegetable oil, sea salt, baking powder, annatto plant extract.
VEGETABLES: carrots, potatoes, onion, peas.
SAUCE: sugar, hvp, sherry, salt, caramel colour 150, chili, red capsicum, teriyaki sauce, thickener 1488, vegetable gum 415, garlic powder, food acid 330, water, gelatin.



INGREDIENTS: Sugar, Flour, Egg, Vegetable Oil, Baking Powder, Golden Syrup, Glucose Syrup, Salt, Pomegranate (420), Emulsifiers (322, 433, 471, 475), Food Acid (296, 330, 575), Preservative (202, 211, 281), Gelatine, Non-Fat Milk Solids, Whey Powder, Flavours, Colours (133, 150, 151, 155, 160(a)), Vegetable Gums (412, 415), Antioxidants (304, 306), Water Added.

Top Taste

*Chocolate
Sponge Roll*

Where's the chocolate?



James Simpson Winslow

-Researcher in Computer Sciences (U.S.A.)

Suite 406,
15 Albert Avenue,
Broadbeach, Qld 4218

*This letter is of extreme importance to you!
-You will understand why when you read the following pages...*

Another way to part with your money

James Simpson Winslow, "Researcher in Computer [sic] Sciences, USA" (hope you're as impressed by these credentials as we are), has apparently cracked the secret of winning the lottery. For a mere \$49.95 you can buy his Pythagorean Pyramid system and win millions. Question is, what does a man who claims he can win the lottery at the drop of a hat want with your \$49.95?



What happens at 10:36?